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HAMILTON, ONT. McMASTER UNIVERSITY.

ECONOMIC FUTURES CONFERENCE
WESTERN LAKE ONTARIO GROWTH
CORRIDOR.
BACKGROUND PAPERS.

OCT. 6-7,1983

October 6-7, 1983

ECONOMIC FUTURES CONFERENCE
Western Lake Ontario Growth Corridor

Hamilton Convention Centre
Main Street
Hamilton

A Public Service Presentation of McMaster University and The Spectator,
with the support and cooperation of the Government of Ontario.

CONFERENCE ORGANIZATION

Conference Co-chairmen:

Dr. L. J. King, Vice President Academic, McMaster University
Bas Korstanje, Editor, Editorial Page, The Spectator

Agenda Committee

Chairman:

Dr. Peter George, Dean of Social Sciences, McMaster University

Members:

Hon. Robert Stanbury, President, Hamilton & District Chamber of Commerce
Alan Lawley, Director of Public Affairs, McMaster University
M. C. Carter, Carter Chevrolet-Oldsmobile Ltd.
Dr. M. H. Sproule-Jones, Department of Political Science, McMaster University
A. L. Darling, University Registrar, McMaster University
Dr. A. C. Frosst, Assistant Vice President, Research Services, McMaster University
Dr. R. E. Ross, Associate Dean, Faculty of Business, McMaster University
Dr. D. S. Weaver, Associate Dean, Faculty of Engineering, McMaster University
Brian Rushton, Director, Labour & Community Services, United Way
Michael Pennock, Executive Director, Social Planning and Research Council, Hamilton and District
Bas Korstanje, Editor, Editorial Page, The Spectator
Alex Beer, Editor, The Spectator
Brian Christmas, Labour Editor, The Spectator
Paul Mitchell, Business Editor, The Spectator
A. U. Oakie, Executive Vice President, Hamilton Automobile Club
John Morand, Former Director of Economic Development, Hamilton-Wentworth Region
Hon. Gordon Dean, Minister Without Portfolio, Government of Ontario
Andrea Belanger, Executive Assistant to the Hon. Gordon Dean

Conference Secretariat:
Telephone: (416)525-9140
Local 4571

P. F. Reesor, Department of Public Affairs, McMaster University
Pat Ford, Secretariat Co-ordinator
Sarah Wood, Assistant to the Co-ordinator

Conference Arrangements:

Faculty of Social Sciences, and the
Department of Public Affairs, McMaster University

An Invitation to Dialogue

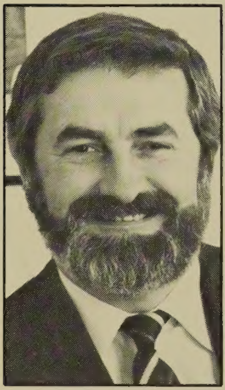
Almost everyone in the Western Lake Ontario Growth Corridor agrees that we face serious challenges over the next decade. As a result of both world and domestic events, this Region has seen a considerable erosion of its economic base due to major and perhaps permanent dislocations in the heavy manufacturing industries on which the Region has traditionally depended. A significant body of opinion suggests that substantial restructuring of the local economy must take place if the Region is ever to return to its former level of prosperity. Less agreement is evident, however, on the best ways to respond to the economic crisis, and the lack of an appropriate forum has tended to inhibit development of any wide consensus on an industrial strategy for the Region.

The Western Lake Ontario Economic Futures Conference provides an opportunity for representatives of the key sectors of the Regional Community to focus attention on our options for the future. National and regional leaders from business, labour, government, the professions, education, social service agencies, and consumer organizations have been invited to contribute to a dialogue on our future. Our purpose is to identify the economic challenges facing the Region, and to define the growth and employment options available for future development. As you will see from the Conference Agenda, we have tried to place all of the important issues on the table for discussion. We have designed a format that allows for focussed discussion and a high level of participation by individual delegates. Finally, we have enlisted the help of the most accomplished and experienced people to speak at the Conference, and to provide authoritative background papers for the discussions.

We are confident that all of the necessary elements are in place for a dialogue that could well chart the direction of economic growth in this Region for the next decade and beyond. Indeed, the discussions that will take place October 6 and 7 could well have added value for those regions across the country that are similarly concerned with the central economic issues we are now facing.

The Western Lake Ontario Economic Futures Conference will be an event of great importance to the people of the Region. We would like to express our appreciation to the Government of Ontario for their invaluable support and cooperation in making this Conference possible. On behalf of McMaster University, The Spectator, and the Conference organizers, we welcome your participation in this important dialogue on the pressing economic and social issues facing our Region in the 1980's. We look forward to seeing you there.

Peter George,
Chairman,
Conference Organizing Committee
and
Dean of Social Sciences,
McMaster University


Dr. Peter George,
McMaster University

Hon. Gordon Dean
Government of Ontario

Dr. L. J. King
McMaster University

Bas Korstanje
The Spectator

Conference Registration

The Conference Registration Desk will be open from 8:00 a.m. to 11:00 a.m. on both Thursday, October 6 and Friday, October 7. The Registration Desk will be located in the Chedoke Hall Foyer, Level Three, Hamilton Convention Centre. Tickets for the cash lunch to be served on both days of the Conference must be obtained at the time of registration. Lunch tickets will cost approximately $7.50.

Delegate Participation

Participation at the Conference is limited to delegates nominated by the various business, labour, government, professional, social, educational and other organizations in the Western Lake Ontario Region. Delegate status provides access to all plenary and workshop sessions and the right to take part in all discussions from the floor. Delegates are also entitled to attend, free of charge, the Conference Reception and Dinner on Thursday evening, October 6th, hosted by the Science Council of Canada and The Spectator, respectively. On registration, each delegate will receive a Conference Agenda, copies of the Background Papers prepared for each session, a Conference Kit consisting of a briefcase and notepad, and individual Conference Credentials. Delegates will also receive such Conference Papers as are published at the completion of the Conference.

Members of the general public are cordially invited to attend any or all of the Conference Sessions as Observers, and can obtain Observer Credentials at the Registration Desk located in the Chedoke Hall Foyer. Observer Credentials do not entitle the holder to attend the Conference Reception and Banquet.

Conference Format

The conference is organized along challenge and response lines in four main discussion areas, or theme tracks. The challenges will be defined in presentations by theme track speakers, by background papers prepared on the individual workshop topics and by the moderators of workshop sessions. The responses will be derived from the discussions of the delegates and workshop panel discussants.

Discussion Theme Chairmen

Theme I: A Manufacturing Base in Transition
— Graham Wilson,
Vice President, Dofasco Inc.

Theme II: The Human Resources Dimension
— Donald C. MacDonald
Former Leader, Ontario New Democratic Party

Theme III: The Public Sector Interface
— Hon. Robert Stanbury
President, Hamilton and District Chamber of Commerce

Theme IV: Coping with the Social Impact of Economic Change
— Michael Pennock
Executive Director, Social Planning and Research Council, Hamilton and District

CONFERENCE PROGRAM

Thursday, October 6 8:00 a.m. – 9:00 a.m. (3rd Floor)	Registration — Hamilton Convention Centre

PLENARY PRESENTATIONS

9:00 a.m. – 10:30 a.m. (Chedoke C)	**Opening Session** Opening Remarks: Dr. L. J. King, Conference Co-Chairman Hon. Gordon Dean Minister Without Portfolio Government of Ontario
	Keynote Address: Professor Chris Freeman Science Policy Research Unit University of Sussex, England
10:45 a.m. – 12:30 p.m. (Chedoke C)	**Defining the Challenges of the Economic Future** General Background Papers: Dr. R. W. Thompson, Department of Economics, and Dr. M. J. Webber, Chairman, Department of Geography, McMaster University These sessions will set the scene for the conference by providing an overview of the environment which will influence the economic future of the region. Experts will examine the issues facing the private and public sectors of the economy, the labour scene and the range of social issues accompanying economic change. Theme I: A Manufacturing Base in Transition J. J. Shepherd Chairman, Leigh Instruments Ltd. Theme II: The Human Resources Dimension Robert Jenness Senior Project Director, Economic Council of Canada
12:30 p.m. – 1:30 p.m. (Chedoke A)	Cash Lunch Break (Tickets should be purchased at time of registration.)
1:30 p.m. – 3:00 p.m. (Chedoke C)	Theme III: The Public Sector Interface Dr. D. M. Winch, Department of Economics, McMaster University and Member, Ontario Economic Council Theme IV: Coping With The Social Impact of Economic Change John Fryer, President, National Union of Provincial Government Employees

THEME DISCUSSION SESSIONS

3:30 p.m. - 4:45 p.m.

(Webster A)

Session Ia:

The Prospects for Heavy Industry

This session will examine the recent performance and the outlook for the large manufacturing concerns which have been the mainspring of the region's economic activity, with particular reference to the structural and employment patterns which may emerge.

Moderator: R. E. Heneault,
Vice President, Administration,
Stelco

- Dr. D. A. Dawson,
  Dept. of Economics, McMaster University
- Wm. Sumpton, Loewen Ondaatje McCutcheon & Co. Ltd.
- H. D. Dent, President, International Harvester Canada
- E. B. Priestner, Vice President, Operations,
  Westinghouse Canada Inc.

Background Paper: Dr. D. A. Dawson and Dr. A. A. Kubursi, Department of Economics, McMaster University.

(Webster B)

Session IIa:

The Labour Force: Human Assets To Grow With

This session will examine the broad labour force situation in Canada as a backdrop to the issues faced by the region, covering such items as trends in participation rates (by age groups and sex), skills, redundancies, retraining and re-location policies, etc., and identify the particular human resources strengths available to the region, areas of labour force specialization or under-utilization that offer specific economic growth opportunities, etc.

Moderator: Dr. John Crispo,
School of Industrial Relations,
University of Toronto

- Dr. David Foot, Department of Economics, University of Toronto
- Cec Taylor, Local 1005, United Steelworkers of America
- Donald MacGillivray, National Economics Editor,
  Southam News

Background Paper: Professor F. T. Denton and Dr. B. G. Spencer, Department of Economics, McMaster University

(Webster C)

Session IIIa:

The Knowledge Industry and Industrial Development

This session will examine the interface between McMaster University and businesses in the "Corridor" with emphasis on research and development needs and constraints, the use of University resources, and manpower development programs.

Moderator: Dr. D. W. L. Sprung
Dean, Faculty of Science,
McMaster University

- Dr. D. R. McCalla, Vice-President, Faculty of Health Sciences, McMaster University
- Dr. J. S. Kirkaldy, Director, McMaster Institute for Energy Studies
- W. A. H. Filer, President, Hamilton Engineering Institute; Past President, The Canadian Society for Civil Engineering
- H. Ian Macdonald, President, York University; Chairman, IDEA Corporation

Background Paper: Dr. A. C. Frosst, Assistant Vice-President Research Services, and President, C.A.R.E.D., McMaster University

(Room 314)

Session IVa:

How Adequate are the Region's Social Services

Labour Force dislocations, problems of youth unemployment, premature retirement, the family and other stresses on the individual that generally accompany major economic changes and similar social impacts will inevitably place great pressure on the region's social service structure when declining regional tax revenues could limit the local funding available. This session will examine the potential need for social services, the adequacy of the present structure, and the respective roles that might be played by government and voluntary agencies.

Moderator: J. G. Doherty,
Publisher,
Owen Sound Sun Times

- W. M. Carson, Commissioner, Social Services Regional Municipality of Hamilton-Wentworth
- Peter Douglas, National Representative, Canadian Union of Public Employees
- Linda Graff, Director, Volunteer Bureau
- Professor Jean M. Jones, School of Social Work, McMaster University

Background Paper: Dr. D. J. Tucker, School of Social Work, McMaster University

RECEPTION AND BANQUET

6:30 p.m.
(Lounge, 3rd Floor)

Reception

Science Council of Canada

Host: Dr. Stuart Smith, President
Science Council of Canada

7:30 p.m.
(Chedoke A)

Dinner

The Spectator

Chairman: Bas Korstanje, Editor
Editorial Page, The Spectator

Speakers:

Hon. Gordon Dean, Minister Without Portfolio,
Government of Ontario

Hon. John Munro,
Minister of Indian and Northern Affairs, Ottawa

Dr. A. A. Lee,
President, McMaster University

Guest Speaker:

Dr. Stuart Smith, President,
Science Council of Canada

Friday, October 7
8:00 a.m. – 11:00 a.m.
(3rd Floor)

Registration — Hamilton Convention Centre
(3rd Floor)

THEME DISCUSSION SESSIONS

9:00 a.m. – 10:30 a.m.

(Webster A)

Session Ib:
The High Tech Option

Manufacturing concerns concentrating on high tech products are increasingly providing a new growth source for many communities. This session will examine the relevance of the high-tech option in the context of market proximity, labour skills availability, R&D potential, venture capital and other relevant factors.

Moderator: Dr. A. C. Heidebrecht,
Dean, Faculty of Engineering,
McMaster University

- Dr. W. A. Pieczonka, President, Linear Technology Inc.
- J. A. Pollock, Chairman and Chief Executive Officer, Electrohome Ltd.
- D. C. Thom, Assistant Secretary, Industry Branch, Ministry of State for Science and Technology (Canada)
- Dr. A. Z. Szendrovits, Dean, Faculty of Business, McMaster University

Background Paper: Dr. J. E. Crozier, Vice-President and General Manager, Canadian Institute of Metalworking.

(Webster B)

Session IIb:
The Implications of Labour Force Dislocations on Employment and Industrial Relations

The paper will examine the impact of new technology, changing world markets and economic reconstruction on established labour force patterns and employment and industrial relations.

Moderator: Harry Greenwood,
President,
Hamilton and District Labour Council

- Brian Rushton, Director of Labour Community Services (United Way); Exec. Member, Hamilton Labour Council
- Dr. R. H. Storey, Assistant Director, Labour Studies Programme, and Department of Sociology, McMaster University
- John Walker, General Manufacturing Engineering Manager, Harvesting Division, Massey Ferguson Industries Ltd.

Background Paper: Dr. H. C. Jain, Faculty of Business, McMaster University.

(Webster C)

Session IIIb:

The Industrial Policy Strategies of the Federal and Ontario Governments

The session will examine the current industrial policy strategies of the two senior levels of government. Items to be discussed include industrial sector strategies, micro and mega projects, and the competitive constraints posed by the actions of other jurisdictions.

Moderator: Dr. A. C. Frosst,
Assistant Vice-President Research Services,
and President, C.A.R.E.D., McMaster
University

- Bryan Davies, Assistant Deputy Minister, Office of Economic Policy, Ministry of Treasury and Economics (Ontario)
- Paul Kovacs, Economist, Canadian Manufacturers' Association
- Dr. A. A. Kubursi, Department of Economics, McMaster University
- Pierre-Paul Proulx, Assistant Deputy Minister, Regional and Industrial Policy and Small Business, Ministry of Industry, Trade and Commerce (Canada)

Background Paper: Dr. M. M. Atkinson, Department of Political Science, McMaster University

(Room 314)

Session IVb:

Special Needs: Social Services for Youth and Elderly

Economic Reconstruction is likely to be most seriously felt by the older worker who has limited or no opportunities for retraining or career shifts when his primary job disappears and by youth with relatively low levels of education and technical training. This discussion will focus on the particular needs of aging and youthful workers, and their adaptation to economic reconstruction.

Moderator: Dr. J. E. MacIntyre,
Director, School of Social Work,
McMaster University

- A. R. Busseri, Manager, Canada Employment Centre
- Jon Buttrum, Executive Director, Citizen Action Group
- Dr. J. Ronald D. Bayne, Medical Director, St. Peter's Centre and Professor of Medicine, McMaster University

Background Paper: Michael Pennock, Social Planning and Research Council, Hamilton and District

11:00 a.m. - 12:30 p.m.
(Webster A)

Session Ic:

Economic Growth from the Service Sector: Prospects for Tourism and Small Business

This session will look at the opportunities and prospects for the service industries as generators of economic growth and employment. This will include the development of new service areas, such as tourism, and the potential to supply service to the Toronto region. The session will also examine the prospects and challenges facing small business.

Moderator: Rena Blatt,
Small Business Consultant,
Ministry of Industry and Trade,
(Ontario)

- Garth C. Campbell, President and Executive Officer, Tourism Industry Association of Canada
- Joyce Mongeon, Secretary, John Dydzak Enterprises Ltd.
- J. F. Shea, Insurance Broker, Mutual Life Assurance Co. of Canada
- Robert Martin, Executive Director, Downtown Hamilton Business Improvement Area

Background Paper: John Morand, Commissioner of Economic Development, City of Scarborough

(Webster B)

Session IIc:

Training Tomorrow's Workers: Educational Opportunities for Youth

This session will examine the educational resources of the region from the standpoint of their relevance as career education instruments, with particular reference to their effectiveness in helping students make better informed career decisions and handle the transition from school to work. The appropriateness of career education resources to the present and projected needs of regional business and industry will also be reviewed.

Moderator: A. U. Oakie,
Executive Vice-President and
General Manager,
Hamilton Automobile Club

- Leonard Auger, Chairman, Halton Board of Education
- William Watson, Assistant Director, Personnel, Dofasco
- Marjorie Baskin, Trustee, Hamilton Board of Education
- Ken Hunter, Asssistant Deputy Minister, Skills Development Division, Ministry of Colleges and Universities (Ontario)

Background Paper: A. L. Darling, Registrar and Director of Institutional Analysis, McMaster University

(Webster C)

Session IIIc:
The Effect of Tax Policies in Stimulating New Business Activity
Tax "holidays" and other forms of tax incentives are devices used frequently by many jurisdictions to provide a competitive advantage in attracting new business and industry. The prospects of using tax-based incentives for developing new business activity in the region will be discussed in this session, together with an assessment of the federal, provincial and regional policy questions underlying the availability of appropriate tax incentives.

Moderator: Robert Cordingley,
Partner, Ernst & Whinney

- Alastair Skinner, Partner, MacGillivray & Co.; President, Institute of Chartered Accountants of Ontario
- Anne H. Jones, Chairman, Regional Municipality of Hamilton-Wentworth
- Jordan Livingston, Jordan Livingston Furs Ltd.
- Roly Bird, Mayor, City of Burlington

Background Paper: Dr. J. A. Johnson, Department of Economics, McMaster University

(Room 314)

Session IVc:
Special Needs: Social Services for the Disadvantaged
The paper examines the implications of the changing economic environment for the provision of social services to disadvantaged groups such as the mentally and physically disabled.

Moderator: Bishop J. C. Bothwell,
Anglican Diocese of Niagara

- June Kertyzia, Executive Director, Path Employment Services
- Dr. J. I. Frid, Associate Clinical Professor, Department of Medicine, McMaster University; Dean of Health Sciences, Mohawk College
- D. S. Wallace, Director, Amity Rehabilitation Centre
- Ross Robinson, Associate Creative Director, R. T. Kelley

Background Paper: Dr. M. J. Dear, Department of Geography, McMaster University

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12:30 p.m. – 1:30 p.m.
(Chedoke A)

Cash Lunch Break
Tickets should be purchased at time of registration

1:30 p.m. - 3:15 p.m.

(Webster A)

Session Id:
Attracting New Capital and New Business

Major economic reconstruction will demand expanded capital investment in infrastructure facilities (hotels, tourism activities, etc.) and new industrial ventures. This discussion will attempt to identify the possible sources of the needed capital and the community climate and other factors that might influence new capital into the region, the type of promotional and other activities necessary to attract new investors, and the steps that can be taken to improve the Region's competitiveness in total after-tax cost of capital.

Moderator: Brian Costello,
Financial Commentator

- C. J. Byron, Director, Policy and Research, Foreign Investment Review Agency
- P. F. Smith, Assistant Vice-President, Roy Nat Inc.
- Michael Curry, Vice Chairman, Wallwyn, Stodgell, Cochran, Murray
- Dr. C. K. Bart, Faculty of Business, McMaster University

Background Paper: Professor Harry Kitchen, Department of Economics, Trent University, Peterborough.

(Webster B)

Session IId:
The Challenge of Manpower Training and Re-Training

The discussion will centre on the challenge of labour force dislocations for effective responses in manpower training policies. The session will look at present government programs and re-training facilities in the region to determine their adequacy in terms of the anticipated future needs.

Moderator: Dr. R. C. McIvor,
Professor Emeritus, Department of
Economics, McMaster University

- Keith Nixon, Associate Dean, Skills Training, Mohawk College
- Alan Wolfson, Chairman, Ontario Manpower Commission
- David Morley, Executive Director, Employment and Immigration Canada
- Dr. Lily Oddie-Munro, Director, School of Adult Education, McMaster University

Background Paper: Dr. R. J. Adams, Faculty of Business, McMaster University.

(Webster C)

Session IIId:
Government as a Catalyst for Economic Development

This session will examine the respective roles of the various levels of government in providing a stimulus and climate for economic development. Topics covered will include direct initiatives from government both as an employer and a producer of goods and services, the provision of physical and social infrastructures, the removal of business investment constraints in relevant public policy areas, and the introduction of effective marketing and promotional activities to "sell" the region to prospective new industries

Moderator: David MacKinnon,
Director, Economic Development Branch,
Ministry of Treasury and Economics (Ontario)

- Robert Morrow, Mayor, City of Hamilton
- J. K. Grant, President, Quaker Oats Company of Canada Limited
- David Barrows, Director, Industrial Policy and Analysis Branch, Ministry of Industry and Trade, Ontario
- John Agro, Chairman, Hamilton Harbour Commission

Background Paper: Dr. M. H. Sproule-Jones, Department of Political Science, McMaster University.

(Room 314)

Session IVd:
Neighbourhood Renewal — A Particular Opportunity

As the regional economy changes, land previously given over to industrial use may well become free for other purposes providing opportunities for both urban renewal and the economic activity renewal projects can generate. Refurbishing aging housing stock and neighbourhoods can also be a productive and beneficial undertaking. This discussion will look at the economic and social potential of neighbourhood renewal in the region and will identify the issues it raises.

Moderator: Alderman Bill McCulloch,
Chairman, Hamilton Planning and
Development Committee

- Irving Zucker, President, Revest Holdings Limited
- Alec Murray, Alec Murray Real Estate
- Kevin Garland, Partner, A. J. Diamond Assoc.
- Robert Hale, Manager, Program Improvement, Canada Mortgage and Housing Corp.

Background Paper: Dr. J. Rice, School of Social Work, and Dr. Thomas J. Lewis, Department of Political Science, McMaster University.

CLOSING PLENARY

3:15 p.m. - 5:00 p.m.
(Chedoke A)

Chairman: Dr. Peter George

Report and Recommendations
of Discussion Theme Chairmen:

Theme I: Graham Wilson, Vice President, Dofasco Inc.
Theme II: Donald C. MacDonald, Former Leader, Ontario New Democratic Party
Theme III: Hon. Robert Stanbury, President, Hamilton and District Chamber of Commerce
Theme IV: Michael Pennock, Executive Director, Social Planning and Research Council, Hamilton and District

Conference Summation: "Next Steps"

Dr. L. J. King, Vice President, McMaster University

Hon. Gordon Dean, Minister Without Portfolio, Government of Ontario

ECONOMIC
FUTURES
CONFERENCE
Western Lake Ontario
Growth Corridor

McMaster University, 1280 Main St. W., Hamilton, Ontario L8S 4L

GENERAL BACKGROUND PAPERS

THE ECONOMIC STRUCTURE OF THE METROPOLITAN REGION OF HAMILTON

MICHAEL WEBBER

DEPARTMENT OF GEOGRAPHY
McMASTER UNIVERSITY

General background paper prepared for

The Western Lake Ontario Growth Corridor

Economic Futures Conference

October 6 and 7, 1983

McMaster University

Economically, a region can be characterised by its particular assembly of fixed capital. These items of fixed capital include on the one hand the particular physical assets laid down by its corporations and governments - industrial plant and machinery, transport facilities, and social infrastructive (housing, hospitals, education and cultural facilities) - and on the other its characteristic social relations, such as the size and education level of its workforce, and the relations that exist between workers and their employers. This fixed capital, both physical and social, is developed during earlier periods of regional economic growth. But the continuation of that economic growth depends on the degree to which the fixed capital is adapted to the requirements imposed by changed economic circumstances.

Two particular aspects of this suitability may be emphasised. The first is the degree to which the region's existing industries are making products for which demand is relatively buoyant. Is the region making steel or aluminimum, clothes or computers? And the second concerns the ability of the region to spawn or to attract new, growing firms. Does the region have characteristics that generate or attract new firms that can provide employment as existing firms slough off workers?

The two aspects - of growth and adaptability - are contradictory. The region's fixed capital assets need to be adjusted to existing economic circumstances for rapid growth. But as economic circumstances change, fostering a new set of fixed capital requirements, so the existing facilities must be judged inadequate: regions which performed poorly in the previous regime of growth and so which have unspecialized fixed capital will be favoured over the existing industrial regions. This mismatch of fixed capital facilites and existing needs of corporations has led in the 1960s and 1970s to the economic demise of the north east of the USA and is now affecting Hamilton.

This paper attempts to describe the economic structure of Hamilton in the light of this thesis. The first two sections describe the city's economy - its occupational and industrial structure, respectively - and the third shows how, over the 1970s, the city has become increasingly specialised in blue collar manufacturing jobs, particularly in the primary metals group of industries. The fourth section of the paper investigates some other aspects of the city's fixed facilities: characteristics of its labour force and physical facilities. The conclusion relates this empirical material to the thesis of the paper.

The paper relies almost entirely upon data published by official sources. Therefore the term "Hamilton" is taken to refer to the Census Metropolitan Area of Hamilton, an area which includes Burlington and the Regional Municipality of Hamilton-Wentworth. If the legally defined City is referred to, it is called the "City of Hamilton". In terms of their industrial and occupational structures and their degree of reliance upon the City's CBD for retailing, the various municipalities of the metropolitan area can be divided into two groups: Burlington on the one hand and Hamilton-Wentworth on the other. Some attempt is made to distinguish these two sub-areas in the paper.

1. Occupational Structure

The occupational structure of Hamilton is compared to those of other Metropolitan areas and of Ontario as a whole in Table 1. The table reveals clearly the main points of distinctiveness of the Hamilton economy. Managerial, professional and artistic or sporting occupations are under-represented in Hamilton compared to Ontario (the 1.65% difference represents nearly 3500 jobs in Hamilton). Presumably related to this fact, clerical jobs are also under-represented in Hamilton (nearly 5000 jobs). By contrast, the blue collar manufacturing, transport and construction occupations are over-represented -- most particularly, the processing and machining occupations (nearly 8000 jobs). These data confirm the stereotypical image of this region, as one in which manufacturing is over-represented and managerial and professional occupations are under-represented. The regional municipality exhibits these characteristics to an even greater degree than does the metropolitan area.

One context for these data is the occupational structure of two other medium-sized metropolitan areas in Southern Ontario. Although Hamilton is well known for its reliance upon manufacturing jobs, in fact Kitchener is even more markedly a blue collar city (nearly 45% of its employment, compared to nearly 42% of Hamilton's). By contrast, London is revealed to be a managerial/professional city (22% of its jobs, compared to 18% of Hamilton's and 17% of Kitchener's) which also performs regional service functions (45% of London's jobs, compared to 40% of Hamilton's and 38% of Kitchener's are in clerical, sales and service occupations). These data confirm Hamilton's irrelevance as a regional service centre.

2. Structure of Manufacturing

Equally, the data in Table 2 confirm the stereotype of the structure of Hamilton's manufacturing industries. Over 40% of the employment and nearly one half of the value of shipments and value added are accounted for by one major industry group: the primary metal industries, which include iron and steel mills, steel pipe and tube mills, iron foundries, smelting and refining and other similar industries. (Confidentiality prevents the publication of data for the individual industries in this group.) Another fifth of the manufacturing activity of the city is in the metal fabricating and machinery groups. By contrast, these three groups account for only a quarter of Ontario's employment and a fifth of its value of shipments. All other manufacturing industries are under-represented in Hamilton.

Both Kitchener and London have a more diversified structure of manufacturing. The largest industry group in Kitchener is the metal fabricating group, which accounts for 15% of the city's employment, while the machinery, transport equipment and electrical products industries each account for another 10% of employment. Measured by value of shipments or value added, on the other hand, the largest industry group in Kitchener is the food processing sector. London, too, is a diversified manufacturing centre: one third of its manufacturing jobs are in the food processing and electrical products industries but no other industry group accounts for over 10% of its employment in manufacturing.

The next table (3) contains additional data on the nature of the manufacturing industries in the three metropolitan areas. Several features of this table are significant.

First, a far smaller portion of manufacturing employees are female in Hamilton than in Ontario as a whole: only 14.6% of the production workers and 25.1% of the administrative workers, compared to 23.3% and 29.9% for the province. By contrast both Kitchener and London employ more female production workers than the province as a whole does. In Hamilton's two major industries, primary metals and metal fabricating, the portion of female production employees is low provincially and even lower in Hamilton. (This pattern holds among administrative workers, too.) In virtually all its other industries, Hamilton employs a higher percentage of female production workers than does the province.

Overall, production workers in Hamilton earned in 1979 nearly 90¢ per hour more than the average provincial worker. London workers earned slightly more and Kitchener worker 60¢ per hour less than the provincial average. Yet this comparison conceals a peculiar aspect of Hamilton's industrial wage structure. Workers in printing and publishing, primary metals, metal fabricating and chemical industries earn high wages and are generally more likely than their provincial counterparts to be male, whereas food and beverage, leather, textiles, clothing, wood, furniture, paper, machinery and non-metallic mineral industries workers earn less and are more likely to be female than their provincial counterparts.

Thirdly, the particularity of Hamilton's occupational structure, noted in the previous section, is evident: 80% of Hamilton's manufacturing industry employees are production workers, compared to only 72% for the province as a whole. Kitchener is like Hamilton in this respect, London like the province. In every industry except the wood and furniture industries and metal fabricating, Hamilton lacks administrative workers.

3. Evolution of Manufacturing

Table 4 shows how Hamilton's manufacturing structure has changed over the last decade. In the years 1971-1979, the productive workforce grew by 12.4%, compared to a provincial rate of 17.2%. The only industries in which Hamilton's employment grew faster than the provincial employment are textiles and clothing (two fairly small industries) and primary metals. In fact, the primary metals and chemicals industries, both having employment increases of over 20%, were the fastest growing industries in the city. Thus Hamilton's reliance on the primary metals sector for employment has increased over the decade: the city's economy is becoming more, not less, specialised. By contrast, in Kitchener and London, the faster growing industries tended to be the smallest ones.

The table also shows the change in the number of administrative workers 1971-1979. For the province as a whole, the supposed trend toward white collar working in industry was not apparent: whereas the productive workforce increased by 17.2%, to administrative workforce grew by only 7.1%. In Hamilton, this difference was even more pronounced: the 12.4% rise in the productive workforce was accompanied by an 8.0% fall in the administrative workforce. Only in textiles and the primary metal industries did Hamilton's administrative workforce grow faster than Ontario's. Again, then, Hamilton's characteristic reliance upon blue collar employment has increased rather than diminished over the 1970's. In neither Kitchener nor London was there such a difference in rates of change of productive and administrative manufacturing employment.

As a result of these separate changes, Hamilton's manufacturing labour force grew by 7.6% over the eight years (compared to the provincial 14.2%). Hamilton's relatively slow growth was a result of the relatively poor performance of its non-primary metal industries and of its loss of administrative jobs.

Far fewer data are available with which to describe the period since 1979. Statistics Canada collects monthly labour force data from larger corporations (those which employed over twenty people in any one month of a calendar year), which, while not comparable to the censuses of populations or of manufacturers which were used to construct Tables 1 through 4, can be used to assess recent trends. Manufacturing employment reached a peak in May 1981 in Hamilton. Since then, employment in both the city and the province has fallen precipitously; by January 1983, Hamilton had lost nearly 18000 manufacturing jobs, almost one quarter of its total (Ontario's manufacturing employment was then 83.7% of its May 1981 level). Hamilton's workers indeed, were paying the price for the city's increasing specialisation in production and primary metal jobs: production jobs had declined to 69.4% but administrative jobs to only 92.5% of their May 1981 levels: and durable manufacturing jobs had declined to 73.1% (contrast nondurable: 84.5%) of the number of May 1981.

4. Characteristics of fixed capital

Firms which are making location decisions respond to the location of a region and to its fixed capital characteristics in relation to other regions. Interviews with the executives of such firms provide valuable data, therefore, on the perceived fixed capital assets of Hamilton. Tables 5 and 6 provide the results of two interview studies. (Note though, that the response "Expansion/consolidation" is not a reason for leaving the region so much as a reason for leaving the existing site: this response in a result of poor interview technique. Equally "Plant/site availability" can only affect firms already looking here.)

Several locational attributes of the city were noted by the respondents. These include proximity to the Toronto, Southern Ontario and US markets (positively) but also the distance from contact with Toronto area businesses. These locational characteristics are balanced by several other characteristics of the region.

The nature of available industrial sites was important to several executives. In particular the perceived shortage of industrial land near the main highways, the lack of business park sites, zoning difficulties and the cost of land are all claimed by some to have put them off Hamilton. The city, it seems, has only poorly located land and "old-fashioned" plants for rent (multi-storey, near downtown, away from the highways).

Hamilton's access to transport facilities is also mentioned frequently. Positively, these include the harbour, rail connections and access to the nearby limited-access freeways - 401, 403, Queen Elizabeth Way. More problematic are the facts that the city is actually located twenty miles south of the 401 while industrially zoned land is poorly located for access to the freeway system.

Aspects of the "atmosphere" of the city were also cited. These include the claim that the city was "too big" or the environment was "unsuitable", but it's not clear that these claims really mean. Table 7 refers to some aspects of the city's environment. Hamilton, with 6.3% of the province's workforce claimed only 5.0% of its construction during the period 1971-1982; Wentworth County did even more poorly relative to its workforce. Thus the industrial plant, commercial and government buildings and residences are all relatively old in Hamilton as compared with the fixed facilities of other nearby cities.

Finally, Tables 5 and 6 reveal that many executives responded in some way to the labour situation in Hamilton. Labour was perceived as being available: indeed the city had a participation rate of only 60.6% (compared to 62.3% for the province) and female participation rate of only 44.5% (compared to Ontario's 48.0%): see also Table 9. However, the apparent militancy of the city's workers drew negative comment. Data on local strikes and lockouts are not available but Table 8 shows that (excluding government employees) Hamilton's workforce is not especially highly unionised, though the male workforce is mere highly unionised than in nearby cities.

One other aspect of Hamilton's social fixed capital deserves to be mentioned. The increasing reliance of the city on blue collar jobs and the primary metal sector has been noted. One result of their is not only a male dominated workforce, but also a poorly educated one. In 1976, over 45% of Wentworth County's workforce had only a Grade 11 education or less, compared to 42.5% in Ontario and only 35.6% in London; conversely, only one third of its workforce hd some post-secondary education (37.3% in Ontario, 41.7% in London).

5. Conclusions

The development of the occupational and industrial structure of Hamilton over the last decades has reinforced the traditional view of this city: a blue collar, high wage, highly unionised, poorly educated male workforce complemented by a low wage and unemployed female workforce in a town dominated by production rather than administration or services and by primary metals production above all else. The result is a city that has poor internal transport facilites, limited land accessible to freeways, a relatively old built environment and a slow growing economic base. Produced by and adapted to the needs of growth of one industry in the 1960s and 1970s, Hamilton's labour force and physical infrastructure no longer are adapted to the needs of growing industries.

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TABLE 1

OCCUPATIONAL CHARACTERISTICS OF HAMILTON, 1971

OCCUPATION	PERCENTAGE OF EMPLOYMENT IN OCCUPATION				
	HAMILTON	HAMILTON-WENTWORTH	KITCHENER	LONDON	ONTARIO
1. Managerial, administrative	4.35	2.90	4.60	5.00	5.37
2. Natural Sciences, Engineering and Mathematics	3.39	2.70	2.80	2.80	3.59
3. Social Sciences	0.85	0.78	0.79	1.30	1.13
4. Religion	0.22	0.22	0.24	0.31	0.25
5. Teaching	4.43	3.70	4.70	5.20	4.40
6. Medicine and Health	4.38	4.70	3.10	6.40	4.26
7. Artistic Literary and Professional				1.10	1.17
TOTAL OF 1-7	(18.42)	(15.70)	(17.05)	(22.11)	(20.17)
8. Clerical	17.88	18.00	17.60	20.20	20.21
9. Sales	11.14	9.40	10.70	12.30	10.97
10. Service	10.82	12.10	10.10	13.00	12.17
TOTAL OF 8-10	(39.84)	(39.50)	(38.40)	(45.50)	(43.35)
11. Processing	6.37	7.40	6.70	2.30	4.21
12. Machining	6.05	6.60	7.40	3.70	4.36
13. Fabricating, Assembling and Repairing	9.55	9.80	14.30	9.30	9.53
TOTAL OF 11-13	(21.97)	(23.80)	(28.40)	(15.30)	(18.10)
14. Construction Trades	6.99	7.20	6.10	6.40	7.14
15. Transport Equipment Operating	4.03	4.10	2.90	3.90	4.13
16. Materials Handling	4.15	4.60	3.30	2.80	2.88
17. Other Crafts and Equipment Operating	1.29	1.20	1.10	1.50	1.58
18. Other Occupation	3.32	3.70	2.80	2.50	2.61
TOTAL OF 14-18	(19.78)	(20.80)	(16.20)	(17.10)	(18.34)
TOTAL	100.00	100.00	100.00	100.00	100.00

Note: Employment in each occupation is expressed as a percentage of all employment, excluding farming, forestry, fishing and mining occupations and those for whom occupations were not stated. "Hamilton", "Kitchener" and "London" refer to Census Metropolitan Areas; "Hamilton-Wentworth" to the Regional Municipality (i.e., excluding Burlington).

Source: Statistics Canada: Census of Canada, 1971. Occupations, Catalogue 94-715 to 94-727, Ottawa.

TABLE 2

STRUCTURE OF MANUFACTURING,

INDUSTRY	PERCENT OF HAMILTON'S			PERCENT OF ONTARIO'S			PERCENTAGE OF KITCHENER'S			PERCENTAGE OF LONDON'S		
	EMPLOYMENT	VALUE OF SHIPMENT	VALUE ADDED	EMPLOYMENT	VALUE OF SHIPMENT	VALUE ADDED	EMPLOYMENT	VALUE OF SHIPMENT	VALUE ADDED	EMPLOYMENT	VALUE OF SHIPMENTS	VALUE ADDED
Food & beverage	5.9	8.8	4.5	9.5	12.2	10.6	11.9	22.5	17.3	16.7	18.2	19.7
Tobacco products	-	-	-	0.4	0.7	0.6	-	-	-	-	-	-
Rubber & plastics	-	-	-	4.4	3.1	3.8	-	-	-	7.5	9.8	12.3
Leather	1.6	0.7	0.8	1.5	0.7	0.8	4.4	2.6	2.8	-	-	-
Textiles	3.0	1.4	1.7	3.4	2.2	2.6	6.1	4.0	3.8	-	-	-
Knitting mills	-	-	-	0.8	0.3	0.4	2.4	1.7	1.7	-	-	-
Clothing	2.4	1.3	1.7	2.7	1.1	1.6	2.8	1.8	2.5	2.8	1.1	1.5
Wood	0.5	0.2	0.3	2.5	1.5	1.9	1.5	1.2	1.3	1.0	0.5	0.4
Furniture & fixtures	0.5	0.2	0.3	2.7	1.2	1.7	4.2	2.6	3.5	-	-	-
Paper & allied products	-	1.5	1.5	5.1	4.4	5.1	-	-	-	-	-	-
Printing, publishing	2.2	1.0	1.6	5.6	2.7	4.8	2.1	1.2	1.8	8.1	3.6	5.1
Primary metals	41.6	47.9	47.5	8.3	8.0	9.1	-	-	-	3.9	3.9	2.8
Metal fabricating	12.4	12.3	11.2	10.2	6.9	8.9	15.1	12.6	13.8	7.6	4.9	5.3
Machinery	6.5	4.7	6.3	6.6	5.7	7.1	9.5	10.2	11.4	7.7	7.0	6.9
Transport equipment	-	-	-	13.5	25.4	16.3	9.6	9.6	11.4	-	-	-
Electrical products	-	-	-	8.7	6.1	8.0	9.8	8.1	7.5	16.3	11.1	16.7
Non-metallic mineral products	3.3	2.3	2.7	3.0	2.2	3.2				1.4	1.3	1.4
Petroleum & coal products	-	-	-	1.2	4.7	1.3	-	-	-	-	-	-
Chemicals	2.8	7.1	7.7	5.5	7.5	8.5	1.5	4.3	3.1	-	-	-
Miscellaneous	1.2	0.5	0.7	4.5	3.3	3.8	-	-	-	1.9	0.9	1.1
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Note: Industry percentages do not add to 100 because missing data are suppressed for confidentiality.

Source: Satistics Canada: Manufacturing Industries of Canada, 1979, Sub-provincial Areas, Catalogue 31-209, Ottawa.

TABLE 3 (1)

CHARACTERISTICS OF MANUFACTURING IN HAMILTON, 1979

INDUSTRY	PRODUCTION WORKERS FEMALE (%)	PRODUCTION WORKERS WAGES ($/hr)	PRODUCTION WORKERS AS % ALL WORKERS	ADMIN WORKERS FEMALE (%)	SHARE OF VALUE OF SHIPMENTS MATERIALS (%)	SHARE OF VALUE OF SHIPMENTS WAGES (%)	SHARE OF VALUE OF SHIPMENTS PROFIT & DEPRECIATION
Food & beverage	39.6	6.54	70.2	31.2	79.1	9.9	11.0
Tobacco	-	-	-	-	-	-	-
Rubber & plastics	-	-	-	-	-	-	-
Leather	73.5	4.62	88.5	43.5	49.3	25.0	22.0
Textiles	63.0	5.72	85.6	30.1	51.7	26.1	21.6
Knitting Mills	-	-	-	-	-	-	-
Clothing	87.9	4.50	91.2	44.7	48.1	20.1	34.8
Food	17.1	5.50	81.4	28.3	52.9	26.2	19.5
Furniture & fixtures	9.0	6.40	72.4	30.3	39.6	34.1	21.7
Paper etc.	27.9	7.30	79.7	29.4	60.4	25.0	15.1
Printing & publishing	29.0	8.10	55.9	34.5	33.3	36.3	29.8
Primary metals	2.1	9.21	86.1	17.2	57.3	18.0	22.8
Metal fabricating	7.7	7.90	76.8	26.3	62.1	18.1	19.5
Machinery	21.4	7.40	92.0	28.2	47.6	24.0	31.0
Transport equipment	-	-	-	-	-	-	-
Electrical	-	-	-	-	-	-	-
Non-metallic minerals	15.7	7.30	76.9	28.0	43.0	24.4	25.6
Petroleum etc. products	-	-	-	-	-	-	-
Chemicals	16.2	8.90	76.2	31.5	55.7	7.6	37.0
Miscellaneous	33.4	5.40	30.2	38.4	47.5	26.9	25.5
TOTAL	14.6	8.12	80.2	25.1	58.5	18.3	22.9

Notes and sources: see Table 2.

TABLE 3 (2)

CHARACTERISTICS OF MANUFACTURING IN ONTARIO, 1979

INDUSTRY	PRODUCTION WORKERS			ADMIN WORKERS	SHARE OF VALUE OF SHIPMENTS		
	FEMALE (%)	WAGES ($/hr)	AS % ALL WORKERS	FEMALE (%)	MATERIALS (%)	WAGES (%)	PROFITS & DEPRECIATION
Food & beverage	29.1	6.94	65.1	29.0	68.8	12.2	18.7
Tobacco	36.5	8.22	64.4	28.2	70.9	9.5	18.0
Rubber & plastics	32.0	6.43	95.1	27.8	57.4	20.6	18.0
Leather	62.6	4.86	85.4	43.6	60.3	22.8	16.7
Textiles	49.3	6.16	81.3	34.5	56.1	25.8	18.2
Knitting mills	71.9	4.56	86.6	45.8	51.6	30.2	19.1
Clothing	80.1	4.67	87.1	51.3	51.0	22.1	24.7
Wood	12.2	6.18	84.2	25.7	53.9	23.1	22.3
Furniture & fixtures	23.7	5.60	84.3	38.2	49.9	28.4	21.7
Paper etc.	14.7	8.06	77.6	29.0	53.2	20.6	20.7
Printing & publishing	28.1	7.63	55.9	44.3	37.8	32.8	29.3
Primary metals	3.7	8.70	79.7	20.0	57.2	19.7	20.8
Metal fabricating	13.0	7.20	77.8	28.6	54.5	23.6	21.3
Machinery	8.1	7.62	70.1	25.4	58.5	19.5	21.1
Transport equipment	10.5	8.51	78.8	21.2	77.3	10.0	11.8
Electrical	38.1	6.92	65.6	28.6	55.3	23.1	20.8
Non-metallic minerals	9.9	7.75	74.0	26.9	43.0	22.9	27.1
Petroleum etc. products	2.3	10.10	29.6	34.6	90.0	6.1	3.7
Chemicals	20.6	7.71	52.2	29.1	56.2	13.4	26.8
Miscellaneous	44.1	5.77	68.6	37.8	60.2	18.9	20.6
TOTAL	23.3	7.27	72.3	29.9	63.9	16.4	19.1

TABLE 3 (3)

CHARACTERISTICS OF MANUFACTURING IN KITCHENER, 1979

INDUSTRY	PRODUCTION WORKERS			ADMIN. WORKERS	SHARE OF VALUE OF SHIPMENTS		
	FEMALE (%)	WAGES ($/hr)	AS % ALL WORKERS	FEMALE (%)	MATERIALS (%)	WAGES (%)	PROFIT & DEPRECIATION
Food & beverage	28.0	7.54	80.6	30.0	66.3	12.4	20.5
Tobacco	-	-	-	-	-	-	-
Rubber & plastics	-	-	-	-	-	-	-
Leather	68.7	4.81	83.4	55.2	54.1	23.5	22.8
Textiles	45.5	5.40	86	44.0	59.8	26.1	14.0
Knitting mills	62.7	5.03	84.7	31.4	55.0	24.4	18.1
Clothing	86.7	4.69	89.1	53.9	44.9	23.5	37.6
Wood	13.1	5.63	79.1	23.4	53.3	25.2	21.9
Furniture & fixtures	23.6	5.55	81.8	31.1	43.5	29.8	28.3
Paper etc.	-	-	-	-	-	-	-
Printing & publishing	28.8	7.40	53.0	39.5	33.6	38.9	26.7
Primary metals	-	-	-	-	-	-	-
Metals fabricating	16.9	6.73	77.6	25.0	54.8	28.9	18.1
Machinery	11.6	6.92	65.7	27.0	53.5	21.1	27.4
Transport equipment	15.4	8.12	85.0	24.2	46.3	27.3	24.2
Electrical	47.3	5.79	73.9	29.3	61.7	23.3	16.7
Non-metallic minerals	-	-	-	-	-	-	-
Petroleum etc. products	-	-	-	-	-	-	-
Chemicals	13.8	6.86	57.5	24.8	68.4	9.6	21.7
Miscellaneous	-	-	-	-	-	-	-
TOTAL	29.6	6.64	78.2 -	29.8	57.4	21.6	21.5

TABLE 3 (4)

CHARACTERISTICS OF MANUFACTURING IN LONDON, 1979

INDUSTRY		PRODUCTION WORKERS FEMALE (%)	PRODUCTION WORKERS WAGES ($/hr)	PRODUCTION WORKERS AS % ALL WORKERS	ADMIN WORKERS FEMALE (%)	SHARE OF VALUE OF SHIPMENTS MATERIALS (%)	SHARE OF VALUE OF SHIPMENTS WAGES (%)	SHARE OF VALUE OF SHIPMENTS PROFIT & DEPRECIATION
Food & beverage	1	31.6	7.57	73.4	31.1	52.0	16.9	30.2
Tobacco	2	-	-	-	-	-	-	-
Rubber & plastics	3	32.9	8.00	44.8	36.3	14.9	14.9	46.0
Leather	4	-	-	-	-	-	-	-
Textiles	5	-	-	-	-	-	-	-
Knitting Mills	6	-	-	-	-	-	-	-
Clothing	7	87.2	4.25	89.4	50.7	37.7	29.1	33.9
Wood	8	8.4	5.38	88.4	26.9	58.6	26.4	13.9
Furniture & fixtures	9	-	-	-	-	-	-	-
Paper etc.	10	-	-	-	-	-	-	-
Printing & publishing	11	26.3	6.78	56.5	37.7	38.2	38.9	23.2
Primary Metals	12	30.4	6.70	87.3	32.5	67.2	15.8	15.9
Metal fabricating	13	17.1	6.52	78.1	22.6	55.7	25.7	21.7
Machinery	14	4.1	7.26	71.4	27.3	59.2	20.0	23.4
Transport equipment	15	-	-	-	-	-	-	-
Electrical	16	48.5	8.85	82.5	26.3	36.0	29.3	36.2
Non-metallic minerals	17	3.0	7.87	78.4	24.7	50.6	21.1	26.5
Petroleum etc products	18	-	-	-	-	-	-	-
Chemicals	19	-	-	-	-	-	-	-
Miscellaneous	20	26.5	5.97	79.7	40.7	46.7	30.2	22.0
TOTAL		30.1	7.41	72.9	30.3	57.1	18.4	25.3

TABLE 4(1)

CHANGES IN INDUSTRIAL STRUCTURE, HAMILTON, 1971-1979

INDUSTRY		NO. OF PRODUCTION WORKERS 1971	ADMIN. WORKERS AS % TOTAL 1971	VALUE ADDED PER $ SAL. & WAGES 1971	% INCR. PROD. WORKERS 1971-1979	% INCR. ADMIN. WORKERS 1971-1979
Food & beverage	1	3201	28.4	1.97	-8.4 (8.5)	-2.2 (-1.8)
Tobacco	2	-	-	-	(-11.0)	(45.6)
Rubber & plastics	3	-	-	-	(39.7)	(22.1)
Leather	4	-	-	-	(1.5)	(7.5)
Textiles	5	1599	14.5	1.72	15.2 (9.5)	14.0 (7.9)
Knitting mills	6	-	-	-	(-2.0)	(-9.5)
Clothing	7	1366	11.7	1.41	15.9 (10.1)	-15.3 (17.6)
Wood	8	252	26.3	1.47	4.4 (38.2)	33.3 (25.7)
Furniture & fixtures	9	307	23.8	1.54	-24.1 (30.1)	-7.3 (-3.7)
Paper	10	1459	23.7	1.66	-8.7 (8.6)	-24.9 (-4.8)
Printing, publishing	11	751	44.0	1.87	15.2 (19.7)	15.4 (20.4)
Primary metal	12	20476	15.8	2.39	23.9 (10.0)	7.1 (-1.6)
Metal fabricating	13	5672	27.1	1.85	18.5 (21.9)	-3.8 (8.4)
Machinery	14	3702	25.9	1.48	-10.4 (29.9)	1.2 (10.0)
Transport equipment	15	1662	17.6	1.95	(29.1)	(8.7)
Electrical	16	4096	37.1	1.73	(3.3)	(-4.6)
Non-metallic minerals	17	1933	23.4	1.81	-8.6 (1.4)	-10.0 (5.0)
Petroleum & coal	18	-	-	-	(59.4)	(16.7)
Chemical	19	1255	41.8	3.70	20.4 (22.0)	-47.6 (19.0)
Miscellaneous	20	686	34.3	1.86	-3.1 (16.4)	-57.4 (11.3)
TOTAL		50546	23.2	2.12	12.4 (17.2)	-8.0 (7.1)

Note: Ontario data are in parenthesis. Sources are as for Table 2.

TABLE 4 (2)

CHANGES IN INDUSTRIAL STRUCTURE, KITCHENER 1971-1979

INDUSTRY		NO. OF PRODUCTION WORKERS 1971	1971 ADMIN. WORKERS AS % TOTAL 1971	VALUE ADDED PER $ SAL. & WAGES 1971	% INCR. PROD. WORKERS 1971-1979	% INCR. ADMIN. WORKERS 1971-1979	1979 VALUE ADDED PER $ OF SAL. & WAGES
Food & beverage	1	40141	28.0	2.33	22.7	-23.9	4.12
Tobacco	2	-	-	-	-	-	-
Rubber & plastics	3	4209	19.1	2.18	-	-	-
Leather	4	1979	11.0	1.57	-5.0	53.1	1.97
Textile	5	2759	12.8	1.67	-3.2	7.4	1.53
Knitting mills	6	560	19.4	1.54	88.8	41.5	1.74
Clothing	7	1378	14.7	1.29	-8.2	-35.0	2.60
Wood	8	286	17.6	1.68	108.7	159.0	1.87
Furniture & fixtures	9	1561	22.2	1.35	12.3	-12.4	1.95
Paper	10	228	17.4	1.95	-	-	-
Printing, publishing	11	451	40.3	1.85	27.7	67.8	1.69
Primary metal	12	-	-	-	-	-	-
Metal fabricating	13	5662	23.5	1.69	-18.8	.69	1.63
Machinery	14	1681	31.8	2.08	-	-	2.30
Transport equipment	15	2871	18.1	1.88	46.0	16.5	1.88
Electrical	16	3791	27.2	1.66	-1.5	-6.92	1.72
Non-metallic minerals	17	331	20.4	1.84	-	-	-
Petroleum & coal	18	-	-	-	-	-	-
Chemical	19	124	53.7	2.46	291.1	149.3	3.27
Miscellaneous	20	853	27.2	1.88	-	-	-
TOTAL		33364	22.5	1.87	20.9	15.6	1.99

TABLE 4(3)

CHANGES IN INDUSTRIAL STRUCTURE, LONDON 1971-1979

INDUSTRY		NO. OF PRODUCTION WORKERS 1971	1971 ADMIN. WORKERS AS % TOTAL 1971	VALUE ADDED PER $ SAL. & WAGES 1971	% INCR. PROD. WORKERS 1971-1979	% INCR. ADMIN. WORKERS 1971-1979	1979 VALUE ADDED PER $ OF SAL. & WAGES
Food & beverage	1	3409	27.2	2.69	-16.2	-18.5	2.79
Tobacco	2	-	-	-	-	-	-
Rubber & plastics	3	-	-	-	-	-	3.99
Leather	4	393	10.3	1.66	-	-	-
Textile	5	49	31.0	1.77	-	-	-
Knitting mills	6	202	11.8	1.78	-	-	-
Clothing	7	350	17.6	2.00	65.7	-8.0	2.17
Wood	8	330	17.3	1.88	-38.5	-62.3	1.53
Furniture & fixtures	9	97	10.2	1.75	-	-	-
Paper	10	847	29.8	1.66	-	-	-
Printing, publishing	11	1104	40.5	1.51	-2.9	9.6	1.60
Primary metal	12	-	-	-	-	-	-
Metal fabricating	13	1440	26.5	1.49	-3.3	-24.9	1.84
Machinery	14	1440	32.1	2.11	-10.5	-24.2	2.17
Transport equipment	15	4980	20.5	1.29	-	-	-
Electrical	16	3056	28.0	2.78	2.4	-44.1	2.23
Non-metallic minerals	17	366	18.1	1.91	-27.6	-9.9	2.26
Petroleum & coal	18	-	-	-	-	-	-
Chemical	19	320	44.7	2.83	-	-	-
Miscellaneous	20	237	23.2	1.96	51.1	3.4	1.73
TOTAL		19661	28.0	2.07	-13.6	-17.1	2.38

TABLE 4 (2)

CHANGES IN INDUSTRIAL STRUCTURE, KITCHENER 1971-1979

INDUSTRY		NO. OF PRODUCTION WORKERS 1971	1971 ADMIN. WORKERS AS % TOTAL 1971	VALUE ADDED PER $ SAL. & WAGES 1971	% INCR. PROD. WORKERS 1971-1979	% INCR. ADMIN. WORKERS 1971-1979	1979 VALUE ADDED PER $ OF SAL. & WAGES
Food & beverage	1	40141	28.0	2.33	22.7	-23.9	4.12
Tobacco	2	-	-	-	-	-	-
Rubber & plastics	3	4209	19.1	2.18	-	-	-
Leather	4	1979	11.0	1.57	-5.0	53.1	1.97
Textile	5	2759	12.8	1.67	-3.2	7.4	1.53
Knitting mills	6	560	19.4	1.54	88.8	41.5	1.74
Clothing	7	1378	14.7	1.29	-8.2	-35.0	2.60
Wood	8	286	17.6	1.68	108.7	159.0	1.87
Furniture & fixtures	9	1561	22.2	1.35	12.3	-12.4	1.95
Paper	10	228	17.4	1.95	-	-	-
Printing, publishing	11	451	40.3	1.85	27.7	67.8	1.69
Primary metal	12	-	-	-	-	-	-
Metal fabricating	13	5662	23.5	1.69	-18.8	.69	1.63
Machinery	14	1681	31.8	2.08	-	-	2.30
Transport equipment	15	2871	18.1	1.88	46.0	16.5	1.88
Electrical	16	3791	27.2	1.66	-1.5	-6.92	1.72
Non-metallic minerals	17	331	20.4	1.84	-	-	-
Petroleum & coal	18	-	-	-	-	-	-
Chemical	19	124	53.7	2.46	291.1	149.3	3.27
Miscellaneous	20	853	27.2	1.88	-	-	-
TOTAL		33364	22.5	1.87	20.9	15.6	1.99

TABLE 4(3)

CHANGES IN INDUSTRIAL STRUCTURE, LONDON 1971-1979

INDUSTRY		NO. OF PRODUCTION WORKERS 1971	1971 ADMIN. WORKERS AS % TOTAL 1971	VALUE ADDED PER $ SAL. & WAGES 1971	% INCR. PROD. WORKERS 1971-1979	% INCR. ADMIN. WORKERS 1971-1979	1979 VALUE ADDED PER $ OF SAL. & WAGES
Food & beverage	1	3409	27.2	2.69	-16.2	-18.5	2.79
Tobacco	2	-	-	-	-	-	-
Rubber & plastics	3	-	-	-	-	-	3.99
Leather	4	393	10.3	1.66	-	-	-
Textile	5	49	31.0	1.77	-	-	-
Knitting mills	6	202	11.8	1.78	-	-	-
Clothing	7	350	17.6	2.00	65.7	-8.0	2.17
Wood	8	330	17.3	1.88	-38.5	-62.3	1.53
Furniture & fixtures	9	97	10.2	1.75	-	-	-
Paper	10	847	29.8	1.66	-	-	-
Printing, publishing	11	1104	40.5	1.51	-2.9	9.6	1.60
Primary metal	12	-	-	-	-	-	-
Metal fabricating	13	1440	26.5	1.49	-3.3	-24.9	1.84
Machinery	14	1440	32.1	2.11	-10.5	-24.2	2.17
Transport equipment	15	4980	20.5	1.29	-	-	-
Electrical	16	3056	28.0	2.78	2.4	-44.1	2.23
Non-metallic minerals	17	366	18.1	1.91	-27.6	-9.9	2.26
Petroleum & coal	18	-	-	-	-	-	-
Chemical	19	320	44.7	2.83	-	-	-
Miscellaneous	20	237	23.2	1.96	51.1	3.4	1.73
TOTAL		19661	28.0	2.07	-13.6	-17.1	2.38

TABLE 5

STATED REASONS FOR LOCATION IN HAMILTON - WENTWORTH

FACTOR	NUMBER OF TIMES CITED AS PRIMARY REASON	NUMBER OF TIMES CITED AS SECONDARY REASONS
Location of Region	5	4
Plant/site availability	3	3
Labour availability	3	3
Service availability	1	2
Other	1	5

Source: Currie, Coopers & Lybrand Ltd: The Regional Municipality of Hamilton - Wentworth: An Action Plan for Economic Growth, unpublished report, September 1978, Appendix X.

Note: Data are based on interviews with executives of 10 newly locating firms (not new firms).

TABLE 6

STATED REASONS FOR NOT LOCATING IN OR LEAVING HAMILTON - WENTWORTH

	REASONS FOR LEAVING		REASONS FOR LOCATING
	PRIMARY	SECONDARY	ELSEWHERE
Lack of land/	–	–	4
suitable sites	1	1	–
Cost of land	1	2	–
Labour	1	2	2
Transport	–	2	–
Location	1	4	–
"Atmosphere"	1	1	4
Expansion/ Consolidation	6	–	–

Source: See Table 6.

Note: Data are based on interviews with the executives of 14 firms.

TABLE 7

ESTIMATED VALUE OF CONSTRUCTION, BUILDING PERMITS ISSUED, 1971-1982.

PLACE	INDUSTRIAL	COMMERCIAL	INSTITUTIONAL, GOVERNMENT	TOTAL
	(ALL AS PERCENT OF ONTARIO TOTAL)			
HAMILTON	5.8	4.7	4.3	5.0
WENTWORTH	4.7	3.4	3.6	3.6
KITCHENER	3.2	3.0	2.4	3.2
LONDON	2.2	2.9	4.09	3.1

Source: Statistics Canada: Building Permits, Annual Summary, Catalogue 64-203, Ottawa, annually.

Note: Data are calculated from the estimated value of work to be done on permits issued for new construction, alterations and improvements; minor repairs are not included.

TABLE 8

UNION MEMBERSHIP, 1981

PLACE	NUMBER OF UNION MEMBERS			UNION MEMBERS AS PERCENT OF ONTARIO MEMBERS			PERCENT OF MEMBERS FEMALE
	TOTAL	GOVT.	OTHER	TOTAL	GOVT.	OTHER	
TORONTO	446609	48158	398451	39.8	25.6	42.6	31.6
HAMILTON	72798	6184	66614	6.5	3.3	7.1	21.5
KITCHENER	38002	2680	35322	3.4	1.4	3.8	29.6
LONDON	48267	7557	40710	4.3	4.0	4.4	36.6
ONTARIO	1123214	187956	935258	-	-	-	-

Source: Statistics Canada: Corporation and Labour Unions Reforms Act, Report for 1981, Part II - Labour Unions, Catalogue 71-202, Ottawa, 1983, pp 36-40, 50.

Note: In May 1981 Hamilton had 6.3%, Kitchener 3.6% and London 2.9% of Ontario's total workforce.

TABLE 9

EDUCATION AND LABOUR FORCE PARTICIPATION RATE, 1976

	ALL LEVELS OF EDUCATION			GRADE 11 OR LESS SCHOOLING			POST SECONDARY EDUCATION		
PLACE	POP. OVER 15 YEARS (000)	LABOUR FORCE (000)	PARTIC. RATE (%)	PROP. OF POP. (%)	PROP. OF LABOUR FORCE (%)	PARTIC. RATE (%)	PROP. OF POP. (%)	PROP. OF LABOUR FORCE (%)	PARTIC. RATE (%)
ONTARIO									
ALL	6191	3856	62.3	50.6	42.5	52.2	30.7	37.3	75.9
FEMALES	3157	1515	48.0	-	48.9	36.5	-	37.7	62.7
HAMILTON									
ALL	399	242	60.6	50.7	42.1	50.5	30.1	36.8	74.2
FEMALES	204	91	44.5	-	48.5	33.3	-	37.4	60.7
WENTWORTH									
ALL	.313	187	59.8	54.0	45.4	50.3	27.2	33.6	74.1
KITCHENER									
ALL	201	132	65.7	51.8	45.5	57.7	31.2	36.0	76.0
FEMALES	102	53	51.5	-	45.3	43.6	-	34.0	64.3
LONDON									
ALL	206	132	64.1	43.7	35.6	52.2	35.9	41.7	74.3
FEMALES	107	55	51.1	-	32.7	38.3	-	43.6	64.9

Source: Statistics Canada: 1976 Census of Canada, Supplementary Bulletins: Economic Characteristics, Vol. 10, Catalog 94-831, Ottawa 1978.

Note: "Hamilton", "Kitchener", "London" refer to Census Metropolitan Areas; "Wentworth' to the Regional Municipality of Hamilton - Wentworth (formerly Wentworth County.)

THE ECONOMY OF METROPOLITAN HAMILTON: SOME BASIC FACTS AND RECENT TRENDS.

By:

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THE ECONOMY OF METROPOLITAN HAMILTON - SOME BASIC FACTS AND SOME RECENT TRENDS*

Introduction

The past few years have not been good ones for the world economy or for the Canadian economy and they have, not surprisingly, been rather poor years for the economy of the metropolitan Hamilton area.[1] In the case of Hamilton, however, these economic difficulties seem to have their origin in something more than a cyclical recession. It appears that economic expansion in the H.M.A. has not been keeping pace with that in the rest of the country or with the Ontario average since the boom years of the early 1970's.

The purpose of this paper is twofold. First, it provides some of the relevant statistical data required to assess the present position and recent trends for the economy of the H.M.A. Second, it examines the growth and present composition of employment in the H.M.A. by major industrial sectors in an attempt to provide some general indication of strengths and weaknesses in the employment picture for this area.

The focus of this study is on employment in the private sector of the economy of the H.M.A. It is concerned, to be more specific, with the level of such employment and the trend of it relative to that for the comparable sectors of the Ontario economy over the period 1974-81. In this context we need to explain why we have chosen to use the Ontario economy rather than that of the entire country as our basis of comparison and why the period 1974-81 has been taken as the basis for the comparison of trends.

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[1] The Hamilton Metropolitan Area (H.M.A.) is defined to include Hamilton, Burlington, Ancaster, Dundas, Grimsby, Stoney Creek, and the Townships of Flamborough and Glanford.

*It is a pleasure to thank Mike McHugh, Julie Bergshoeff, and Andrew Waldie for their assistance in this project.

The regional economies of the Atlantic provinces, the Prairies, and of British Columbia are very different from the economy of Ontario. The H.M.A. is located in the midst of Ontario and a comparison of the H.M.A. with Ontario would appear to have rather more significance than a comparison with the much more heterogeneous economy of the entire country. In fact, however, in most respects the Ontario economy has been growing more slowly than the national economy in the past few years and, as we shall see, the economy of the H.M.A. has been growing more slowly than that of Ontario. If we were to make our comparison with Canada rather than with Ontario the disappointing nature of the H.M.A. record would be even more apparent.

The year 1974 was chosen as the beginning year for our comparisons because it was the last year of the prosperous period in the early 1970's. Since that time unemployment has been higher and productivity increases have been lower. We take 1981 as the most recent year because the data are more complete than for 1982 but also, and more importantly, because 1982 was the most depressed year since the 1930's and so is not a good year to use for the analysis of trends.

Some Economic Trends and Comparisons

I. Population

The population is the basis for the labour force which, in turn, provides the most important economic input. Moreover, a flourishing Hamilton economy would tend to attract population from less prosperous areas while a stagnating or depressed economy would be expected to experience slower population growth.

Table 1

Population - Hamilton Metropolitan Area and Total Ontario

YEAR	HAMILTON	ONTARIO	HAMILTON as a % of Ontario
	(thousands of persons)		
1974	521.0	8,105	6.43
1975	527.0	8,237	6.40
1976	529.4	8,273	6.40
1977	534.5	8,361	6.39
1978	534.3	8,445	6.33
1979	534.1	8,506	6.28
1980	536.2	8,575	6.25
1981	543.2	8,631	6.29

This table needs little comment. It is immediately apparent that population growth in the H.M.A. has been slower than that for the province. In 1981 the population of the H.M.A. was only 4.26% greater than in 1974. The corresponding growth rate for Ontario was 6.49% and for Canada it was 8.76%.

For the city of Hamilton the rate of population growth has been slower than for the H.M.A. For the decade 1971-81, Hamilton's population increased by only 1%. Burlington, which is, of course, part of the H.M.A. has experienced population growth of approximately 25% over the past decade.

Labour Force

Statistics for the H.M.A. labour force, which are available from 1977, show an increase of 3.83% over the period 1977-81 compared with 9.69% for the provincial total.

Table II

Labour Force - Hamilton Metropolitan Area and Total Ontario

(thousands of workers)

YEAR	HAMILTON	ONTARIO	Hamilton as % of Ontario
1977	261	3,994	6.53
1978	261	4,147	6.29
1979	262	4,289	6.11
1980	267	4,366	6.12
1981	271	4,481	6.05

Total Employment - Industrial Composite *

Here again we find a pattern similar to that observed for the population and the labour force - the growth rate for the H.M.A. is less than that for the province. It is worth noting, however, that in this

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*This can be taken to refer to employment in the private sector of the economy.

case the H.M.A. growth rate has been equal to that for the province over the latter half of the 1974-81 period.

Table III

Total Industrial Employment - Hamilton Metropolitan Area and Total Ontario

YEAR	HAMILTON	ONTARIO	HAMILTON as % of Ontario
	(thousands of workers)		
1974	122.4	1879.1	6.5
1975	118.6	1827.5	6.5
1976	120.3	1856.8	6.5
1977	118.8	1872.8	6.3
1978	121.2	1955.2	6.2
1979	127.4	2016.8	6.3
1980	127.9	2004.6	6.4
1981	130.7	2067.4	6.3

It is also of some interest that Hamilton has a relatively low proportion of female workers. In Hamilton in 1981, female workers made up 28% of the industrial composite employment compared with 32½% for Ontario. In 1974 the figures were 25½% and 29% respectively. The reason for this differential would seem to be that economic activity in Hamilton has a relatively great emphasis on heavy industry where female participation is low. This suggests that there might be more female workers available if there were more employment opportunities in such industries as Trades and Services.

Total Personal Disposable Income

Total personal disposable income in the H.M.A. has varied between 6.59% and 6.81% of that for the province. The proportion increased to a peak in 1976 and has fallen moderately since that year.

Table IV

Personal Disposable Income - Hamilton Metropolitan Area and Total Ontario

YEAR	HAMILTON	ONTARIO	HAMILTON as % of Ontario
	(millions of dollars - not adjusted for inflation)		
1974	2,326	35,288	6.59
1975	2,725	41,203	6.61
1976	3,338	48,985	6.81
1977	3,704	54,499	6.80
1978	4,120	61,403	6.71
1979	4,467	67,430	6.62
1980	4,944	74,900	6.60
1981	5,496	82,891	6.63

Average Income in Hamilton on the Basis of Income Tax Returns

The Department of National Revenue publishes annually a ranking of the average income reported by residents of different cities across the country. For the taxation years 1971, 1972, 1973 and 1974 Hamilton was ranked 17th, 11th, 23rd and 15th respectively. In the period beginning in 1975 the City of Hamilton has never ranked higher than 45th.

Per Capita Personal Disposable Income at Constant Prices

The primary purpose of this table is to show the trend of average purchasing power per person in H.M.A. compared with the Ontario average. It is evident from the table that the figure for H.M.A. has risen more rapidly than that for Ontario over the period as a whole but this relative increase occurred in the first half of the period; there has been a moderate relative decline since the peak was reached in 1978. However, the 1981 figure is still 3 percentage points above that for 1974.

Table V

Personal Disposable Income per Capita at Constant Prices

YEAR	HAMILTON	ONTARIO	HAMILTON as % of Ontario
1974	3,568	3,488	102.3
1975	3,733	3,617	103.2
1976	4,164	3,949	105.4
1977	4,310	4,049	106.4
1978	4,401	4,132	106.5
1979	4,374	4,146	105.5
1980	4,378	4,151	105.5
1981	4,271	4,055	105.3

It is also of some interest to note that for both the H.M.A. and for Ontario the real purchasing power per capita reached a peak in

1978. There was little change in 1979 and 1980 but in 1981 both areas experienced a decline of some 2.5% in this magnitude.

Capital Expenditure in Manufacturing Industry

Capital expenditure in manufacturing in the H.M.A. has, in all but two of the eight years of the 1974-81 period, varied between 8 and 9 per cent of the provincial total. There has been no significant trend in this proportion - the average for the first four years of the period was 8.6% and that for the last four years was 8.7%.

Table VI

Capital Expenditure - Manufacturing Hamilton Metropolitan Area and Total Ontario

YEAR	HAMILTON	ONTARIO	HAMILTON as % of Ontario
	(millions of dollars)		
1974	201.0	2,252.2	8.9
1975	249.5	2,850.9	8.8
1976	238.8	2,978.3	8.0
1977	289.6	3,359.4	8.6
1978	289.6	3,085.6	9.4
1979	268.2	3,545.1	7.6
1980	421.1	4,778.7	8.8
1981	497.9	5,646.7	8.8

It may be worth noting that the H.M.A. average percentage for the twelve years 1962-73 was 11.4% of the provincial total and in only two of these twelve years did the figure fall below the 8.7% average of the 1974-81 period. It is an encouraging fact that the sharp downward trend of the early 1970's has been arrested. There seems however to be no significant trend toward the higher proportion of the earlier years.

Trends for the City of Hamilton

In this study the focus has been on the H.M.A. and it is clear that in most respects the rate of growth for this area has been slower than the provincial average. However, it needs to be realized that the H.M.A. includes Burlington which has been growing faster than has Hamilton. Consequently, if we had considered the City of Hamilton by itself the comparison with the provincial average growth rate would have been even more unfavourable than it was found to be for the entire H.M.A.

Trends in Employment and its Distribution by Industrial Sectors

In the first part of this study we have seen that the economic growth of the H.M.A. has been slower in most respects than the average for the province. We turn now to consider the industrial composition of employment in the H.M.A. and the trends in it since 1974.

Table VII

Employment (Industrial) Hamilton Metropolitan Area and Ontario Total (June, 1981)

	Hamilton		Ontario	
	Number (000)	% of Total	Number (000)	% of Total
Manufacturing - durable	55.8	42.7	467.4	22.6
Manufacturing - non-durables	18.2	13.9	384.6	18.6
Construction	5.4	4.1	78.8	3.8
Transportation, Communication and other utilities	9.1	7.0	251.0	12.2
Trade-retail and wholesale	22.3	17.1	384.2	18.6
Services	13.8	10.5	299.7	14.5
Other	6.1	4.7	201.7	9.7
Total Industrial Composite	130.7	100.0	2067.4	100.0

In Table VII we show the distribution of the industrial composite employment for the H.M.A. and the comparable figures for Ontario for June, 1981. The importance, for the H.M.A. of employment in manufacturing, especially of durable goods, and the relatively smaller importance of Trade and Services stand out in this comparison.

Of greater interest for our purposes is Table VIII which shows, for the H.M.A. and for Ontario, the composition of industrial employment by sectors in 1974 and in 1981. We can see from this table that employment in Ontario increased by 10.0% while in the H.M.A. it increased by only 6.8%. The significance of this for employment can be appreciated when we realize that if the employment growth rate for the industrial composite in H.M.A. had been equal to that for the province there would have been 3,900 additional workers employed in the H.M.A. in 1981.

Table VIII

Relative Growth Rates of Employment in Industrial Sectors - Hamilton Metropolitan Area and Ontario

(employment figure in thousands)

	HAMILTON			ONTARIO		
	1974	1981	1981 as % of 1974	1974	1981	1981 as % of 1974
Manufacturing - durables	56.6	55.8	98.6	481.4	467.4	97.1
non durables	16.3	18.2	111.7	363.9	384.6	105.7
Construction	5.6	5.4	96.4	94.8	78.8	83.1
Utilities - Transportation, Communication, etc.	7.7	9.1	118.2	220.6	251.0	113.8
Trade - retail & wholesale	21.2	22.3	105.2	332.2	384.2	115.7
Services	9.9	13.8	139.4	209.7	299.7	142.9
Other	5.1	6.1	119.6	176.5	201.7	114.3
Total	122.4	130.7	106.8	1879.1	2067.4	110.0

We can identify two possible general causes for this relatively unfavourable performance. First, the H.M.A. has a higher than average proportion of its employment in the relatively slow growth industries, especially in the manufacturing of durable goods and, conversely, it has a relatively smaller proportion of its activity in the rapidly growing sectors, notably Services and Trade. To put the matter in colloquial terms "the H.M.A. has its industrial eggs in the wrong baskets."

The second source of difficulty arises from the comparative rates of growth of employment in the different sectors in the H.M.A. as compared with the provincial average. The H.M.A. had a more favourable rate of employment growth than the provincial average in manufacturing, (both durables and non-durables) and in construction. But the provincial rate of growth in these sectors was below the average for the total industrial composite. On the other hand, the H.M.A. had a slower rate of growth than the provincial average in the rapidly-growing sectors of Trade and Services. In summary, the H.M.A. in its areas of relative concentration, has experienced employment growth which is above that for the province in these sectors -- but these are the sectors of relatively slow employment growth. Conversely, in its areas of relatively smaller emphasis, the H.M.A. has had a rate of employment growth which is below the provincial average for these sectors.

It is possible, by means of a statistical analysis, to measure separately the influence on employment in the H.M.A. of these two factors. The calculations are too lengthy to be given here in detail but the conclusion is that the slower than average employment growth in the H.M.A.

is due to the industrial structure of the area with its emphasis on slowly growing types of industry. In short, in the aggregate the figure for industrial composite employment in the H.M.A. has been growing more slowly than the provincial average because of the importance in the area of relatively slowly growing industries and not because of the relative rates of growth in the H.M.A. compared to Ontario in the different industries. Again, to put the conclusion in colloquial terms, it can be said that "in our areas of specialization we do well but we are specializing in the wrong areas", i.e. our employment is concentrated in the industries of slow growth.

Conclusion

The problem of growth and employment in the private sector of the H.M.A. may be considered in four phases. The first two, the present position and the recent trends which have brought the H.M.A. to this position, have been considered in this study. There remain two other matters to which we have given little or no attention. These two questions are, first, what are the causes of the unfavourable trends which we have observed and, second, what measures could be taken to reverse these trends? It is to these two difficult questions that attention should now be directed.

R. W. Thompson
August, 1983

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BACKGROUND PAPERS

DISCUSSION THEME TRACK I

"A MANUFACTURING BASE IN TRANSITION"

SESSION Ia

THE REGIONAL HEAVY INDUSTRY BASE: PROBLEMS AND PROSPECTS.

BY:

DR. D.A. DAWSON
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The Regional Heavy Industry Base: Problems and Prospects

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I. Introduction

The uneven development of regions within a nation is a common phenomenon whose causes are not often well understood or explained. Generally, the development of a given region is tied to the quality and quantity of its resources, its access to technology, its urban environment and to its generalized accessibility to the national and international communication and transportation networks.

These factors cannot be isolated from one another. Together they define a minimum threshold for sustaining industrial development. This derives from what economists describe as the agglomeration effect. This phenomenon includes internal economies of scale to the firm which amongst other things require the firm to locate in cities large enough to generate the requisite inputs, such as labour. Also included are transfer economies between firms which make it more efficient for selected firms to locate next to each other. It is also the outcome of economies external to the firm based on the use of a common infrastructure of services and facilities. All these factors emphasize primarily supply side considerations although the last condition could be interpreted to relate to accessibility to wider markets beyond the region's perimeters. Demand considerations are also critical. They dictate the export base of the region, its product mix and the cyclical change in regional economic activity and as such cannot be ignored.

The analysis we provide below of the heavy industry base in our reference region attempts to relate this base to both demand and supply factors. Specifically we intend to explain the importance of this base to the general industrial structure of the region, the recent developments within this base and its likely prospects in the near future.

II. The Regional Heavy Industry Base: A Macro Perspective

In writing this paper we have made some arbitrary decisions as to the nature of industries which can be considered "heavy" and the area which should be considered as part of the relevant regional growth corridor. The decisions were greatly influenced by the nature and extent of published data which, unfortunately, do not exist for the period after 1979. However, the following tables will give the reader a sense of the importance of heavy industry in the region and of underlying trends in its development.

We have defined, as our region, the area included in Hamilton-Wentworth, Halton and Haldimand-Norfolk. The heavy industry sector consists of the following broadly defined industry groups;

a. Primary metal industries
b. Metal fabricating industries
c. Machinery industries
d. Transportation equipment industries
e. Electrical products industries
f. Chemical and chemical products industries.

To assist in our subsequent analysis and discussion we have prepared a number of tables which contain relevant economic data from the industry groups over the period 1970-79.

Table 1 summarizes the basic regional data for the heavy industry sector.

Table 1

Basic Regional Data by Industry (1970, 1975, 1979)

Industry	Establishments	Number of Workers	Value of Shipments ($,000)	Value Added[1] ($,000)
	1970			
Primary Metals	26	24,022	$ 969,219	$505,131
Metal Fabricating	234	10,989	356,579	$150,197
Machinery	44	6,283	153,594	$ 81,794
Transportation Equipment	15	1,708	64,344	$ 22,489
Electrical Products	28	7,707	198,382	$103,754
Chemicals	63	3,114	216,465	$100,799
Total	410	53,823	$1,958,583	$964,164
	1975			
Primary Metals	28	25,886	$1,815,096	$749,157
Metal Fabricating	183	10,612	623,508	247,322
Machinery	55	3,879	170,324	76,830
Transportation Equipment	12	2,234	145,286	53,285
Electrical Products	27	6,912	304,886	155,564
Chemicals	36	2,525	347,070	117,554
Total	341	52,048	$3,406,170	$1,399,712
	1979			
Primary Metals	33	29,476	$3,326,104	$1,358,853
Metal Fabricating	198	10,282	1,008,387	389,840
Machinery	69	5,336	341,643	192,186
Transportation Equipment	15	2,858	240,499	86,866
Electrical Products	41	5,143	371,891	201,808
Chemicals	41	2,470	580,757	245,497
Total	397	55,565	$5,869,281	$2,475,050

[1] Value added is value of gross output minus cost of inputs purchased for the production process.

Source: Statistics Canada, Manufacturing Industries of Canada: Sub-Provincial Areas 1970, 1975, 1979.

The data indicate that over the time period in question the number of employed workers in heavy industry has increased by approximately three per cent while value of shipments and value added have increased by 200 per cent and 158 per cent respectively. Of course when evaluating the last two figures one must take into account the inflation rate over the same time period which accounted for an increase in the Consumer Price Index of 97 per cent.

To put the raw data presented in Table 1 in some perspective we measure the importance of our six industrial sectors in comparison to total manufacturing activity in our base region, in Ontario and in Canada. The results in Table 2 indicate the growing importance which the six industries have had in total manufacturing activity in the area. Of particular interest is the increasing percentage of shipments and value-added coming from this sector.

Tables 3 and 4 present the same compilation of data for Ontario and Canada. The trends here are for a slight reduction in percentage share with regards to total Ontario manufacturing, and to the total Canadian manufacturing market.

Finally to present a picture of the stability of market shares of the six industry groups in our region vis à vis their competitors in other Ontario regions and across Canada we have constructed Tables 5 and 6. The data in these tables indicate that the majority of the six industry groups have kept a relatively stable market share and thus any changes in output and employment in these

Table 2

Regional Heavy Industry Activity Compared to Total Regional Manufacturing Activity, 1970, 1975, 1979

Year	Heavy Industry Establishments as a % of Total Regional Manufacturing Establishments	Heavy Industry Workers as a % of Total Regional Manufacturing Workers	Heavy Industry Value of Shipments as a % of Total Regional Manufacturing Value of Shipments	Heavy Industry Value Added as a % of Total Regional Manufacturing Value Added
1970	37.44%	57.7%	49.7%	62.7%
1975	41.43%	68.7%	73.5%	75.2%
1979	42.82%	69.7%	75.7%	78.7%

Sources: (1) Statistics Canada, Manufacturing Industries of Canada: Sub-Provincial Area 1970, 1975, 1979.

(2) Statistics Canada, Manufacturing Industries of Canada: National and Provincial Areas, 1970, 1975, 1979.

Table 3

Regional Heavy Industry Activity Compared to Total Ontario Manufacturing Activity 1970, 1975, 1979

Year	Heavy Industry Establishments as a % of Total Ontario Manufacturing Establishments	Heavy Industry Workers as a % of Total Ontario Manufacturing Workers	Heavy Industry Value of Shipments as a % of Total Ontario Manufacturing of Shipments	Heavy Industry Value Added as a % of Total Ontario Manufacturing Value Added
1970	3.2%	6.7%	7.0%	8.4%
1975	2.8%	6.1%	6.4%	7.9%
1979	2.8%	6.1%	6.4%	7.6%

Source: As in Table 2.

Table 4

Regional Heavy Industry Activity Compared to Total Canadian Manufacturing Activity 1970, 1975, 1979

Year	Heavy Industry Establishments as a % of Total Canadian Manufacturing Establishments	Heavy Industry Workers as a % of Total Canadian Manufacturing Workers	Heavy Industry Value of Shipments as a % of Total Canadian Manufacturing Value of Shipments	Heavy Industry Value Added as a % of Total Canadian Manufacturing Value Added
1970	1.2%	3.3%	3.7%	4.8%
1975	1.1%	3.0%	3.3%	3.6%
1979	1.2%	3.0%	3.3%	3.8%

Source: As in Table 2.

groups might be considered to be cyclical in nature. In those reflecting shrinking market share, structural questions have to be raised. These questions will be covered in more detail in the next section.

III. The Region's Industrial Base: A Sectoral Perspective

The preceding section focused on the performance and relative position of the region's heavy industry base within the regional manufacturing sector, the province and nation. The emphasis in this section is on the differential performance of the respective industry groups that comprise this heavy industry base.

Although it is difficult to generalize about the performance of aggregate industry groups, the following observations are felt to depict the general trends dominating their performance between 1970 and 1979.

First, the heavy industry base has increased its value added share in the total manufacturing base of the region between 1970 and 1979. The increase is more pronounced in the primary metal industries than in any other industry group.

Second, with the exception of transportation equipment industries, all other industry groups within the heavy industry base of the region have suffered decreases in their value added shares in total manufacturing value added at the provincial and national levels between 1970 and 1979.

Third, the value added shares by industry groups at the provincial and national levels reveal, however, a slightly different pattern. The primary metal industries managed to increase slightly

Table 5

Regional Heavy Industry Activity Compared to Ontario Heavy Industry Activity, Various Sectors 1970, 1975, 1979

Products	Regional Establishments as a % of Ontario Establishiments	Regional Workers as a % of Ontario Workers	Regional Value of Shipments as a % of Ontario Value of Shipments	Regional Value Added as a % of Ontario Value Added
		1970		
Primary Metal	12.3%	33.6	40.9	45.7
Metal Fabricating	11.1	13.4	16.1	14.0
Machinery	8.7	11.4	8.6	8.5
Transport Equipment	4.1	1.9	1.1	1.4
Electrical Products	6.2	9.8	9.2	11.5
Chemicals	11.0	7.3	11.5	11.2
		1975		
Primary Metal	13.9	36.9	45.2	43.3
Metal Fabricating	8.8	12.3	15.8	13.1
Machinery	9.1	6.9	5.5	5.7
Transport Equipment	3.1	2.2	1.1	1.7
Electrical Products	5.5	8.3	7.6	8.9
Chemicals	6.7	5.7	9.7	7.6
		1979		
Primary Metal	13.9	39.0	44.8	45.8
Metal Fabricating	7.9	11.0	15.8	13.3
Machinery	8.8	8.8	6.5	8.3
Transport Equipment	3.0	2.3	1.0	1.6
Electrical Products	6.6	6.4	6.7	7.7
Chemicals	6.7	4.9	8.4	8.8

Sources: As in Table 2.

Table 6

Regional Heavy Industry Activity Compared to Canadian Heavy Industry Activity, Various Sectors 1970, 1975, 1979

Industry	Regional Establishments as a % of Canadian Establishments	Regional Workers as a % of Canadian Workers	Regional Value of Shipments as a % of Canadian Value of Shipments	Regional Value Added as a % of Canadian Value Added
Primary Metals	6.4	20.6	21.9	27.9
Metal Fabricating	5.8	7.8	9.7	8.4
Machinery	5.2	7.8	6.5	6.7
Transport Equipment	1.7	1.2	0.9	1.0
Electrical Products	3.8	6.4	6.0	7.3
Chemicals	5.6	3.9	6.8	6.8
Primary Metals	7.4	21.5	24.2	25.4
Metal Fabricating	4.7	7.0	9.2	7.5
Machinery	5.0	4.2	3.8	3.8
Transport Equipment	1.2	1.4	0.9	1.3
Electrical Products	3.4	5.5	5.3	5.4
Chemicals	3.4	3.2	5.6	4.4
Primary Metals	7.5	23.3	24.4	27.3
Metal Fabricating	4.1	6.3	8.4	7.7
Machinery	4.6	5.3	4.3	5.4
Transport Equipment	1.2	1.5	0.9	1.2
Electrical Products	3.8	4.3	4.6	5.2
Chemicals	3.4	2.8	5.0	5.1

Sources: As in Table 2.

their value added share in this industry's value added at the provincial level but sustained a minor decline at the national level. On the other hand metal fabricating industries, machinery industries, electrical products, and chemical and chemical products have all experienced declines in their relative value added shares vis-à-vis corresponding industries at the provincial and national levels between 1970 and 1979. Only transportation equipment industries have managed to increase their value added shares in this industry's total valued added at the provincial and national levels during the same period.

Fourth, the total manufacturing employment accounted for by the heavy industry base in the region has increased from 58 per cent in 1970 to about 70 per cent by 1979. Much of the increase in this employment is generated by the primary metals group. The share of metal fabricating industries and that of transportation equipment industries has also increased but that of machinery, electrical products and chemical and chemical products decreased.

Fifth, the employment complement in primary metals and transportation equipment in the region has risen faster than total employment in manufacturing both at the provincial and national levels between 1970 and 1979. The reverse is true for the remaining industry groups within the heavy industry base of the region.

Sixth, as a percentage of provincial employment in the particular industries comprising the heavy industry base of the region, primary metals accounted for 39 per cent of provincial employment in this industry group in 1979 which is significantly higher than its corresponding share of 33.6 per cent in 1970. Employment in transportation equipment industries in the region also increased faster than total provincial employment in this industry thereby raising its share in 1979 to 2.3 per cent from 1.8 per cent in 1970. The rest of the sectors comprising this base suffered decreases in their corresponding shares. The same pattern is discernible for the region vis-à-vis the nation as a whole.

It is an understatement to suggest that the heavy industries in the region have suffered serious setbacks in the past few years. Two major factors explaining this setback need to be isolated -- cyclical factors relating to generalized macroeconomic contractions and structural factors relating to the pattern of demand and the relative position of the region versus other regions within the province, the nation and the world.

The cyclical factors are often policy induced. For instance the rise in interest rates, the result of tight monetary policies of the Central Bank, has impacted more seriously on heavy industries producing postponable commodities than on other sectors, and these sectors are expected to rebound in concert with less restrictive macroeconomic policies. On these matters national and provincial policy-makers are the critical actors whereas regional policy makers are often powerless.

The analysis above revealed that several industries in the regional set of heavy industries have sustained relative declines in their position within the manufacturing sector in the region, the province and the nation. More importantly, some of these regional industries have sustained a decrease in relative importance within the same industry groups in the province and in Canada. Thus, there are two structural aspects to be considered. The first relates to heavy industry versus other industries and the other pertains to the region versus other regions. As to the first aspect, it is doubtful whether regional policies will be effective as these problems involve complex issues of technological change, product substitution and import penetration. On the regional aspects, however, there is plenty of room for the regional actors to impact on the course of developments.

This classification of the policy environment is schematic as there is nothing to preclude interaction of regional actors with other provincial and national actors and the projection of regional concerns on to the provincial and national scenes. However, fine lines of demarcation define the boundaries of direct responsibilities of the respective parties to the policy problems.

The framework is now complete, the policy environment has been defined, and the problems facing heavy industry in the region will now be assigned to structural and cyclical factors since the interaction of the two environments will fashion the future outcome of events. We will consider the industry groups each separately, although such separation is somewhat debatable given the technical and economic affinities that bind these industries together.

a. Primary Metals Industries

The primary metal industries in the region are primarily iron and steel mills, steel pipe and tube mills, smelting and refining and metal rolling and casting. In this sector there are both cyclical and structural problems. However, the influence of structural problems has been exaggerated. The decrease in real GNP growth and the high interest rate have combined to reduce the demand for products that are intensive users of steel. At the same time, the latest decline in real energy prices has led to the postponment of large scale projects that would have required substantial amounts of steel. Since the decrease in real energy prices cannot be assumed to be unrelated to the general performance of the economy, this factor is also classified as cyclical. These views are corroborated by most of the senior executives we have been able to interview.[1] It is their consensus that as the automotive industry improves so will the primary metal industries, not only because of the direct steel requirements of the automobile industry but also because of the indirect demand that will be generated through higher requirements for heavy machinery and specialized equipment. Moreover, most of the executives felt that the demand for agricultural implements will likely to be high in the near future as farmers have overworked their old stock of machinery.

There are, to be sure, several structural concerns too. First, there is a generalized world wide over capacity in steel production. This phenomenon is the outgrowth of substantial expansions of capacity in Japan, the EEC and LDCs. The principal expansions were in Japan. Japanese capacity which was 10 per cent of US capacity in 1956, doubled by 1960. Japanese exports reached the level of US exports by the early 1960s and then began to accelerate dramatically. By 1976,

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[1] A summary of the interviews is presented in Appendix A.

Table 7

Wages and Value-Added in Heavy Industries and Manufacturing, Ontario and Canada, 1970, 1975 and 1979

Industries	ONTARIO			CANADA		
	Wages (w) (million $)	Value Added (VA) (million$)	VA/w %	Wages (w) (million$)	Value Added (VA) (million$)	VA/w %
			1970			
Primary Metals	441	1094	2.48	681	1764	2.60
Metal Fabricating	427	1040	2.44	725	1718	2.37
Machinery Industries	243	653	2.69	334	884	2.65
Transportation Equipment	538	1373	2.55	788	1946	2.47
Electrical Products	299	828	2.77	452	1279	2.83
Chemical & Chemical Products	161	829	5.15	278	1378	4.96
All Manufacturing	3711	10524	2.87	7232	20048	2.77
			1975			
Primary Metals	686	1699	2.48	1119	2880	2.57
Metal Fabricating	730	1831	2.51	1242	3150	2.54
Machinery Industries	444	1125	2.53	699	1766	2.53
Transportation Equipment	964	2507	2.60	1446	3516	2.43
Electrical Products	527	1545	2.93	776	2317	2.99
Chemical & Chemical Products	269	1427	5.30	464	2423	5.22
All Manufacturing	6317	18358	2.91	12672	36139	2.85
			1979			
Primary Metals	1098	2968	2.70	1912	4836	2.85
Metal Fabricating	1093	2833	2.59	1726	4915	2.53
Machinery Industries	683	1972	2.89	1094	3100	2.83
Transportation Equipment	1723	4592	2.67	2539	6594	2.60
Electrical Products	754	2288	3.03	1123	3491	3.11
Chemical & Chemical Products	425	2506	5.90	741	4308	5.81
All Manufacturing	10019	30328	3.03	20377	60623	2.98

Japan had increased its capacity over fivefold from the 1960 levels, surpassing US capacity. Its exports have grown even more rapidly until it is now the world's largest exporter with exports fifty per cent greater than those of its nearest rival, the Federal Republic of Germany, and ten times greater than the US. European steel also expanded dramatically over the sixties and seventies, more than doubling over 1960 levels until combined European capacity also exceeded that of the US.

Compounding this problem is the fact that world wide demand for steel essentially stopped growing in 1973. Substantial declines between 1973 and 1974 were attributed to the oil shock, but the deterioration of demand in the early 1980s made it clear that the problem of over capacity may be chronic. In the US, production for 1981 was as low as that of 1975 and 1982 was worse than 1981. The Japanese domestic market never recovered from its mid-seventies decline, leaving it to absorb an output equivalent to less than 50 per cent of domestic capacity. The situation in Europe was equally grim.

Construction of new capacity stopped in the OECD countries, but it was too late to ameliorate the over-capacity problem. Both Europe and Japan looked to increased exports as a way of alleviating the problem. In Japan exports rose from 28 per cent of total production in 1973 to over 50 per cent of total production in the late 1970s. The US, with high production costs and no tradition of competing in export markets, did not have this option. Furthermore, the US, while no longer the world's largest producer, was still the world's largest market and therefore a natural target for the export drives of other nations. In sum, all this means that Canadian producers will have to face stiff competition even in the US market and possibly at home.

During the 1960s and 1970s the growth of demand for steel in LDCs was the most dynamic component of the world market. This was particularly true in the period after 1973. While demand for steel in industrialized countries shrank at the rate of 2.9 per cent per year from 1973 to 1978, LDC demand increased at the rate of 8.9 per cent. But LDC production grew too and it is now believed that this market is no longer as open to foreign producers as it was in the early 1970s. Thus Canadian producers have no option but to concentrate on the home market and possibly on some exports to the US.

A second structural problem is the current trend to the substitution of cement for structural steel in construction. In addition, aluminum is replacing steel in several traditionally steel using activities. The extent of the first trend can be seen in the fact that between 1981 and 1983 the average monthly bookings from structural steel have dropped by 83 per cent in Canada as a whole and by 82 per cent in Ontario. Most executives interviewed see no prospects of change in these conditions in the near future.

Fortunately, there is no evidence of a technological gap between Canadian and other foreign producers. Unlike US producers who failed to modernize their plants during the fifties and early sixties when they had the cash flow necessary to replace outmoded plants, Canadian producers adopted the oxygen process and the continuous casting system. As is clear from Table 7, the lack of technological improvements in US steel production show themselves in lower value added for each dollar of wages received in steel than the corresponding ratio for all manufacturing. Alternatively, the Ontario figures show a rising ratio of value added for each dollar of wages received in steel over time and these ratios are comparable to those in all manufacturing.

Not withstanding this evidence and the general positive consensus of the executives interviewed, there remains a critical area of concern in this respect. The introduction of the mini-plants that use natural gas instead of coke in the direct reduction method in several locations outside the region may cut into the demand for steel from this region.

In total, the general outlook for this industry is a moderate improvement with the general economy. Limited growth over the long haul is to be expected. Export opportunities of products are limited in the short run; however, the export of steel technology and management to the Third World need to be considered more seriously. Special regard for adjusting the product mix to the new market realities is critical to this industry's general performance.

b. Metal Fabricating Industries

The metal fabricating industries category includes in its definition boiler and plate works, fabricating structural metal, ornamental and architectural metal, metal door and window manufacturers, metal stamping, pressing and coating, wire and products manufacturers, hardware, tool and cutlery manufacturers, heating equipment manufacturers, machine shops. Not all of these activities are present or important contributors in our reference region. The share of this activity in the total manufacturing value added of the region was over 12.4 per cent in 1979. Since it is dominated by small establishments it accounted for over 21.4 per cent of the total number of manufacturing establishments of the whole region in the same year. This industry, much like steel production, is dependent on the generalized macroeconomic demand of the province and the nation but is more importantly tied to the automotive industry, agricultural machinery and other transport equipment.

Much of what has been said about steel applies in one way or the other to this industry. However, this industry has some particularities in the region that need to be examined rather more carefully. First, there are no notable regional producers of boiler and plate works, fabricated structural metal, metal door and window, hardware, tool and cutlery, and heating equipment (notable enough that is to be listed among the major Ontario producers by the Ontario Ministry of Industry and Trade, Statistical Profiles of Ontario Manufacturing Industries, 1982.) Second, imports of most of these products from outside the region dominate regional exports of these products. Given the close technical affinity of these products to primary metal production, one cannot but wonder about the limited presence of these activities in the region, the limited export activity of already existing producers and the fact that the value added share of this activity in total manufacturing value added in the region, province and nation has fallen consistently in recent years.

c. Machinery Industries

The hardest hit industry group within the heavy industry base of the region is that of machinery industries. Here both cyclical and structural problems re-inforce one another. The production of agricultural implements is expected to pick up with a more stable economic environment because the average life of the implements stock of Canadian farmers is at an all time high and this by itself presents a solid pent-up demand that must be met in the near future. Despite this however, export markets remain critical and Ontario imports have almost equalled the value of Ontario manufacturing shipments of this sector in the early 1980s. Actually Ontario imports were almost identical to Ontario exports of agricultural implements in 1980, whereas Canada's imports were more than double that of Canadian exports of this product in the same year. Thus, cyclical factors may not be a sufficient explanation. It is clear that technological and distributional factors are also important explanatory variables of the sluggish performance in this sub-activity as well as is the case for this whole industry group. Limited research and development, limited automation, limited export drives, shortages of particular skills, short production runs, and fiercer foreign competition all combine to reduce the viability of this critical sector to the general health of the provincial and national economies. Indeed, the data in Table 7 show that the value added per dollar of wages received in this group of industries has fallen between 1970 and 1975 and has only rebounded slightly by 1979, while maintaining throughout the period 1970 and

1979, a ratio that is lower than the corresponding value for all manufacturing in the province.

d. Transportation Equipment Industries

An exceptional group of industries in the region is that of transportation equipment. This sector has suffered like the rest of the sectors in the region's heavy industry base because of the slow demand for cars in Canada and the US. However, whereas the other sectors experienced relative declines to the same sectors in other regions and/or the total manufacturing in the region, transportation equipment industries managed to raise their shares on both counts. With the expected and perhaps already registered increases in the demand for locally produced cars and other transportation vehicles and parts, this sector will advance even further pulling with it the preceding two dependent sectors too. The latest figures from Statistics Canada covering sales from July 1982-July 1983 show a marked increase in the sale of domestically produced cars, so much as to have captured almost 80 percent of the market during this period. Japanese car sales lost about half of their 1981 share of the market. These developments are believed to remain dominant in the near future.

Another area of improvement may be in a better performance in the exports of parts and accessories to the US. So far it seems that Ontario's imports of these items is almost twice as large as its exports. Any improvement in the US/Canadian Auto Pact in this area will most likely show immediate benefits in the region.

e. Electrical Products and Chemical and Chemical Products Industries

Electrical products and chemical products particularly petrochemicals stand in sharp contrast to steel and other primary metal activities, both in terms of the dynamism of the industry world wide and the dominance of multi-nationals in the production and distribution of these products.

These industries are also noted for rapid technological changes and large economies of scale and size efficiencies. On both counts Canada, Ontario and the region have not kept pace with international competitors. Research and development expenditures and activities in Canada, and for that matter in Ontario and this region, are not commensurate with those in the US, Japan and even some developing countries. These deficiencies are particularly notable in these industries. The small size of the Canadian market, lack of sufficient experience and stimulus to export, limited integration within the multinational corporations' global production strategies, and inappropriate exploitation of comparative advantage have combined to result in poor performance in the past and limited potential in the future.

Since other papers in this seminar will tackle the knowledge industry, research and development and the triangular links between government, industry and university, no further comments will be made here on this subject other than to note that without down-stream product and process innovation there is not much scope for optimism about these industries in this region.

IV. Summary and Conclusions

A number of observations and trends emerged in the course of studying the heavy industry base in our reference region. Some of the important features include:

(a) There is a heavy dependence of the region's economy and manufacturing base on the performance and developments in the local heavy industries.

(b) Many of these heavy industries are national industries that respond more to national and international developments rather than to local developments.

(c) Cyclical factors dominate the recent setbacks in the income and employment generating capacities of these industries in the region. These setbacks will be reversed with the general improvement of the Canadian economy, particularly that of the automotive sector.

(d) Structural problems are still evident in most of the industries defining the heavy industry base. Research and development deficiencies are singled out as very critical. Problems relating to product mix, import penetration, and size limitations need to be addressed too. Equally important are some regional characteristics and policies that attract and sustain industrial agglomeration. The region is well endowed with adequate labour skills, accessibility to the national and international transportation and communication networks, urban amenities, etc. What is working on the negative side are high pollution levels, congestion of some public facilities, inadequate industrial sites, etc. Regional authorities may have to accentuate and advertise the positive aspects and work to contain and correct the negative components. What is perhaps less necessary is the need to engage in a fruitless competition with other neighbourhoods in a negative-sum game where all will ultimately lose.

Third, it was felt that the demand for agricultural equipment would also be enhanced with the expected continued economic upturn.

Finally, a switch from offshore drilling for oil to more intensive exploration in the "oil patch" in Alberta was also foreseen in the near future by one executive. Such a change would increase the demand for small diameter transmission pipe.

Some structural problems do exist, however. The first is the large amount of over capacity now extant in the primary steel industry. Second is the concern of the structural steel industry over the drop in demand for its products because of the fact that a great deal of the national economic infrastructure is now in place and major construction projects will not be initiated at the same rate as in the past. Also of concern in this industry is the current trend of contractors substituting cement structural components for those made of steel. The extent of the problem here can be seen in the fact that between 1981 and 1983 the average monthly bookings for structural steel have dropped by 83% in Canada as a whole and by 82% in Ontario. No change is foreseen in either of these conditions in the near future.

With regard to technological change, with but one exception the executives felt that they were well aware of the state of the production art in their industries and only current cash flow problems were preventing the purchase of the most modern machinery and equipment. The larger firms were actively carrying out research and had attempted to keep up this activity even during the current recession.

The one exception was once again found in the structural

SESSION Ib

POSITION PAPER FOR
THE ECONOMIC FUTURES CONFERENCE:
WESTERN LAKE ONTARIO GROWTH CORRIDOR

"THE HIGH-TECH OPTION"

by

J.E. CROZIER
Vice President and General Manager

September 1983

CANADIAN INSTITUTE OF METALWORKING
McMaster University
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Metalworking.

SESSION Ib:

THE HIGH TECH MANUFACTURING OPTION

Since the early 50's manufacturing technology has witnessed many changes away from "making by hand" towards the flexible, computer controlled automation machines that are manufacturing products today. Just a few years have passed since industry considered numerical control (NC) technology skeptical and a risk for investment. The hard wired electronic control systems were difficult to operate and program and required much care and perseverance in order to provide an economic payback.

The micro processor revolution dramatically changed this situation. Developments in the high tech manufacturing field are taking place at a rate around the world that will strain the ability of workers, industries and nations to maintain their competitive position in the world economy. This is both a challenge and an opportunity. Some countries have exploited the technology by researching and developing hardware and software for sale on the world market. Japan capitalized on the United States development of industrial robots. The U.S. in turn has dominated the interactive graphics market of Computer Aided Design/Computer Aided Manufacturing systems. Japan, Germany and the United States are the major producers of computerized numerically controlled machine tools, and the same three countries have made significant advances in the development of fully automated factories through the use of unmanned machining centres and flexible manufacturing systems.

Canada is presently a small user of these technologies. We have no significant machine tool industry, or CAD/CAM system/ Robotics manufacturers. However, we need the high technology equipment to manufacture our products. We must continue to purchase equipment from abroad in order to survive as a manufacturing nation. We must be fully aware of the new technologies by pooling our knowledge and resources and coordinating our efforts between companies, research centres and educational institutes.

Forming the CAD/CAM Technology Advancement Council in 1978 was a timely happening for manufacturing technology in Canada. The Council's first major report in October of 1980 provided the background information and recommendations for Canadian Industry, education and government to address CAD/CAM technology in a conscientious manner.[1]

Rationale for the High Tech Option

Why is the high tech option an absolute necessity? Why can we not just keep on manufacturing automotive parts, mould and die tooling, aircraft components, turbine generators, valves, pumps, electrical components, etc. by traditional methods. The answer is that we are being outgunned by the opposition. Our productivity is lower than our competitors and we are losing (or will be) the markets to foreign competition.

The traditional ways of manufacturing by hand are labour intensive. Canada cannot compete directly with the developing countries using traditional methods due to the cost of labour and must implement high tech methods to give manufacturing some leverage. For example, one computerized numerically controlled (CNC) lathe (operated by a competent machinist) can produce three times as many spindles, couplings or shafts than a conventional turret lathe using the same competent machinist. The developing countries such as Taiwan and Singapore also realize the advantage of adopting CNC but the differential in the cost of labour does not have the same impact on the total cost of production using the CNC machine.

TRENDS IN THE MARKET PLACE FOR MANUFACTURED GOODS

Trends in the market place support the need for high technology manufacturing. Prototypes and pre-production units must be analysed, tested and brought to the production phase more quickly due to market demand. Some of the advanced automotive, aircraft and engine manufacturers are designing new products with high tech equipment such as interactive computer graphics. In the past the design of component parts was transferred to vendors through blueprints and other documentation. With the advent of computer graphics the design data is transferred to the vendor through the medium of magnetic tape or direct through a telecommunication system. The second and third tier level companies must have compatible eouipment and must be able to deal with the larger companies in the above manner. We are beginning to see the end of transferring engineering designs of mechanical parts through drawings.

Other market criteria that justify high tech equipment include the demand for a greater variety of products without increasing the volume of products manufactured. Additionally, industry in an effort to keep costs down has reduced inventories; many companies are adopting the "just in time" criteria for component parts coming from vendors. Subcontractors are therefore being requested to supply batches to closely controlled time schedules. The market place has always been quality sensitive; however, quality has become a serious issue when it is linked with shorter design cycles, and complicated processes using new materials.

ENGINEERING CHANGES RELATED TO COST

There is ample proof that catching product changes early in the production cycle greatly reduces cost. This is another important factor in the justification for interactive computer graphics.

It has been estimated that the cost of implementing engineering changes at the prototype phase is ten times the cost of making these same changes at the conceptual design phase. Similarly changes implemented in the production phase are ten times as expensive as changes in the prototype phase. The cost to replace the defect or make the change after the product has gone to the field is extremely expensive.

If CAD/CAM technology can control the overall quality of a product by catching the problems early on in the design phase, then everyone will benefit due to the reduced cost and greater acceptance by the market place.

High Tech Equipment and Methods

Computer aided design, computer aided manufacturing with the abbreviation CAD/CAM has been widely accepted for the past five or six years to relate the use of the computer in the design/manufacturing cycle. The sequence of manufacturing industry tasks starting with the customer requirements, proceeding to conceptual design, design prototypes, product design, manufacturing process planning, manufacturing, quality assurance, warehousing and shipment can be controlled, organized by the skillful use of the computer. The combination of human technical expertise along with the power of the computer can greatly affect the time for product throughput.

INTERACTIVE COMPUTER GRAPHICS

Interactive Computer Aided Design systems, or Interactive Graphics, are often referred to as CAD/CAM systems. However, interactive computer graphics can range from simple two dimensional design/drafting aids to the complete three dimensional system capable of displaying solid objects, with the ability to carry out engineering analysis and output data directly to computerized numerically controlled machine tools.

The hardware configuration of a simple system may be identical to an extensive system (i.e. mini computer, disc storage, magnetic tape, plotter, interactive terminals) with the operational software supplying the major difference between the systems.

The majority of interactive graphics systems have several different levels of software. The user level is accessible through a keyboard, tablet or push button sequence arrangement. The optional characteristics of the system require a considerable amount of study and memorization in the use of the command structure to design or construct geometric items. At this level no computer programming experience is necessary to operate the system. In order to make full use of the available system software computer programming experience is necessary. Most systems have a programming language that allows the operator the choice of carrying out repetitive design functions automatically. User software routines can be written to solve specific problems or to design several similar objects, thus decreasing the time for the overall design and enhancing the productivity of the system. At still another level, the system software may be integrated or linked to other software routines not available from the interactive graphics supplier. Such software may take the form of post-processors for the control of CNC machines, or group technology programs to allow the classification and coding of components where commonality of design can effectively help the design manufacturing cycle, or automated process planning where established processes can be recalled for further use or modification, and nesting software where the graphics system will dynamically fit geometric designs or shapes on a sheet to be cut out or burned by a torch cutter. It has been proven that software programs of this type have saved 12% per year due to scrap reduction alone.

At this level of software integration, needless to say, there are few experts.

NUMERICAL CONTROL OF MACHINE TOOLS

A well established technology, and an important component of CAD/CAM is numerical control of machine tools.[2] NC can range from simple two axis punching, drilling, shearing, bending and flame cutting, to the highly productive two axis computerized lathe, to the more complicated three axes milling machines and machining centres capable of covering a range of milling, drilling, boring operations, to the latest developments of unmanned machining centres and flexible manufacturing systems.

Conventional or stand-alone NC machine tools were developed in the early 1950's. Their operation depends upon a set of coded instructions which are stored on paper tape. The late 1960's saw the introduction of computerized numerical control which provides a mini computer for each individual machine. About the same time distributed numerical control (DNC) systems appeared. They consist of a battery of NC and CNC machines connected to a central computer which handles their operation, control and reporting. DNC facilitates human control of shop operations by providing a centralized source of information. The 1970's saw the introduction of flexible manufacturing systems. They combine DNC capabilities with automated transfer of parts to machines in the system.

During the last several years NC technology has been given a good boost by the microprocessor. Computerized numerical control is now far easier to use, more adaptable to the small machine shop and less likely to cause problems both from the maintenance standpoint and the acceptability of the machinist using the equipment. Information pertaining to the part to be manufactured can now be input directly from the control and in some cases a video screen will display the toolpath generated. The machinist is more directly in control of the machining operation and in using the power of the computer to increase accuracy and throughput.

In some cases, however, external programming is still required. The machinist can program a simple part on the control and store the information in the control where more than one part is required. For difficult operations, such as machining a contoured surface, and blending compound curves, typical in the mould and die industry, then the use of an interactive graphics system to prepare the NC information is highly desirable. The benefits of CAD for the design of diecasting and plastic moulds are enhanced when a link is established directly to CAM where the manufacture of these same moulds is carried out by CNC machine tools.

Additionally, the CAD system may be used for more than just the design of a mould. Software is now becoming available in some CAD systems to construct mould bases automatically from standardized components and automate the mould design based on temperature profiles, cooling time, flow rates and pressures.

ROBOTICS

Robotics are sometimes included as a technology within CAD/CAM. However, robots can stand alone similar to a single installation of an NC machine tool. Industrial robots are available commercially at several levels of sophistication and are used predominantly by the automotive industry for repetitive spot welding, machine loading and painting operations.

There is no doubt that modern robots are helping to make human drudgery a thing of the past. Industrial robots can handle loads ranging from a few ounces to several hundred pounds. The simplest of tasks for robots are the material handling chores of picking up heavy parts from one conveyor and placing them on another conveyor or shipping pallet. Such jobs are ideal for robots. These repetitive tasks can be easily programmed and the programs can be changed as the task requirements change. Machine loading and unloading of parts is a similar application to material handling. However, there are problems such as part alignment and swarf elimination that must be dealt with by an operator. He may also be tending several machines, checking to see that the overall operation is going smoothly.

Although mechanical assembly represents a significant market for the robot, few applications have been totally successful to date. Today's robots can not adapt to changes in the environment, such as the way the part is presented to the robot, the orientation, the best place to hold, etc. Far more research is necessary in the area of sensors for grippers and in machine vision for feedback control of the robots action. Through the use of improved "hands" and "eyes" robots will be able to cope with changing conditions of the workplace.

Spot welding and arc welding can be considered as assembly operations. Generally the robot holds the tool such as a spot welding gun or an arc welding torch and proceeds over the part according to a prescribed program. The big advantage for spot welding operations is the high speed; several spot welds can be made per second.

An application of computerized robot arc welding involves the use of some eighteen robots to arc weld axle housings. The arrangement of robots is capable of welding 100,000 units per year with production runs of 500 to 1500 pieces. The versality of the operations allows individual robot stations to take on other tasks as the demand requires. Changeover time is estimated to be about 30 minutes. The future of robot arc welding will also be geared to the research and development of sensory feedback systems. Adaptive welding control is required to maintain a high quality weld and to assure the proper quantity of "weld joint fill", regardless of joint geometry change.

Additional applications of robot manipulations include the cleaning of castings, deburring of machined parts, the loading and unloading of moulding and casting machines, plating and dipping of metals, heat treatment, and the application of adhesives and lubricants.

The warehouse type of robot or machine stacking unit is basically a transportation device not a manipulator. However, like a robot, it is programmable and you can command it to go anywhere in the system. People are required in a so-called unmanned warehouse - but only to receive the stock, inspect it, and operate the system. The stock gets put on a standardized pallet, placed on a conveyor, and then the computerized stocking system places it in the assigned bin and keeps track of it.

The key to successful implementation of robotics is very similar to other CAD/CAM technologies, make sure that everyone concerned with the robot - operators, programmers, service people, engineers and supervisors - is properly trained.

FLEXIBLE MANUFACTURING SYSTEMS

The introduction of highly automated computer controlled machinery has culminated with the (almost) completely automated factory. Flexible Manufacturing Systems can handle a larger variety of parts than conventional transfer lines (as found in the automotive industry). A significant feature is their ability to handle random processing which minimizes the cost for support tooling, holding fixtures and pallets. F.M.S.'s are highly customized, the number, type and configuration of machine tools, computers and material handling systems will vary from system to system. GERWIN states that an F.M.S. is a complete system. However, it is required to interact with an even more complex organizational system. Installation will lead to unanticipated changes elsewhere in the company. Conversely, pressures from the rest of the organization will produce changes in the originally planned activities of the F.M.S. The resulting degree of fit achieved between organizations and manufacturing systems may have a significant impact upon the ultimate success of the latter. Consequently, managing this fit should be given priority by company management.[8]

Dr. Casper Shih, an international consultant and authority on F.M.S. says that any production system which has the flexibility to produce a variety of products or parts effectively at a random order without human intervention could be called an F.M.S. Many F.M.S.'s presently being used by industries do not fall into this category.[9]

At the FANUC factory in Japan industrial robots are produced using the F.M.S. concept. The factory employs 110 workers in the day time and only one man in the central control room to monitor the unmanned factory. Fanuc says the productivity is five times greater than the conventional factory. This success led to a further expansion to manufacture motors using forty nine robots and five automated material handling cars called "robo trailers". In this two storey factory with 60 workers, ten thousand D.C. and A.C. spindle motors are produced every month. Using conventional methods 100 workers could only produce 6000 units per month. This represents a labour productivity increase of 70%. As Dr. Shih writes, the most remarkable feature in this factory is the warehousing capability. The automatic storage and retrieval system AS/RS can store raw material, finished or semi finished parts, jigs and fixtures and completed products.

In another Japanese application of F.M.S., the company Yamazaki employs a monitoring system to detect defective castings, and broken or worn out tools. The factory has 18 machining centres, and 2 robo carriers controlled from one main PDP 11 computer to automate the machining and material handling system. They produce 84 kinds of main spindle blocks, beds and cabinets with only 6 people on the first and second shifts. The third shift is completely unmanned. A conventional factory would require 250 workers to produce the same output. The President, Mr. Yamazaki predicts he will recover his initial investment of 18 million dollars in two years.

A relatively small installation of F.M.S. at Matsushita Electric Co. involves the use of two robots to assemble 3 types of 8 versions of electric shavers, each one being assembled at a speed of 8 seconds, about four times the speed of a skilled worker. The system requires only 10 minutes to change over to another kind of shaver. The work force was reduced from seven to five people with a significant increase in production of 400%.

Dr. Shih has concluded from his trips to Japan that "the initial costs for F.M.S. are high but labour costs are reduced 20 - 80% and total production costs 20 - 40%". Implementing F.M.S. will be the only way some industries will survive. The technology is here and management has the choice to either adopt it or phase out their plants in the foreseeable future.

TRAINING AND EDUCATION

Just a few words concerning this vital need for CAD/CAM engineers, technologists and operators.-------

If CAD/CAM, robotics and F.M.S. equipment are viewed as tools to increase industry productivity, then expertise in the discipline of useage is one of the most important criteria for effective utilization. This fact is obvious but was also pointed out as the most important factor contributing to the overall success of CAD/CAM installations in a recent survey carried out by the Canadian Institute of Metalworking.

If CNC machine tools are to be used in low quantity batch manufacturing then the operator should be a machinist with a good background in metalcutting fundamentals. He or she can learn to operate the CNC system in a few weeks but it takes four or five years to train a skilled machinist.

Certainly, some disciplines will change; a draftsperson will not require extensive practise drawing neat arrowheads and dimensions. However, he or she will still require training in organizing design information, sectioning, visualization, etc.

This can only come through an extensive learning program.

At the top of the scale, degree programs in manufacturing are not at present attracting a large number of engineering students. Possibly this is due to the past attitude of engineering schools where manufacturing was considered mundane and not really necessary in the engineering curriculum. Times have changed. Engineering graduates are not being offered management opportunities immediately upon graduation and must proceed into the workplace where they are needed most. Indeed, manufacturing engineering is now exciting and CAD/CAM has enhanced the need for the bright young engineer to serve his time with his discipline and grow into a management opportunity.

REFERENCES

1. Strategy for Survival - 1980
   Closing the Gap - 1983
   Reports by the CAD/CAM Technology Advancement Council, Industry Trade and Commerce, 235 Queen Street, Ottawa, Ontario, K1A 0H5
2. A study to Identify the Attitudes and Awareness of Numerical Control Users to CAD/CAM Technology - J.E. Crozier, Canadian Institute of Metalworking November 1980.
3. CAD/CAM - a challenge and opportunity for Canadian Industry. J. Scrimgeour, Engineering Journal, August 1981.
4. The Right Jobs for Robots - Mortimer J. Sullivan. Manufacturing Engineering - November 1982.
5. A Survey of Industrial Robots - Canadian Machinery and Metalworking, January 1982.
6. Its here - the first robot arc welding line - Mike Ostrowski and Michael F. Greeve Hayes - Dana Inc. Axle Division Barrie, Ontario. Welding Design and Fabrication, April 1981.
7. Some Critical Areas in Robotics Research - A.J. Jolzer Carnegi - Mela University. "Advances in Computer Controlled Robots for use in the Manufacturing Industries - Interantional Conference on Manufacturing Engineering, Institute of Engineers, Australia, August 1980.

8. The Organizational Impacts of Flexible Manufacturing Systems: some initial findings. Donald Gerwin, Institute for Social Research in Industry, Norwegian Technical University, Tradheim, Norway, Thomas Leung, SOL International Ltd., Hong Kong.
9. Implementation of Flexible Manufacturing Systems - Casper T.Y. Shih presented at the 2nd Canadian CAD/CAM and Robotics Conference - May 31 - June 2, 1983.

SESSION Ic

ECONOMIC GROWTH FROM THE SERVICE SECTOR: PROSPECTS FOR TOURISM AND SMALL BUSINESS.

By:

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METROPOLITAN HAMILTON
ECONOMIC GROWTH FROM THE SERVICE SECTOR

A. FORWARD

THE "WESTERN LAKE ONTARIO GROWTH CORRIDOR" CORRESPONDS IN TERMS OF THE SERVICE SECTOR TO THE CENSUS METROPOLITAN AREA AS DEFINED BY STATISTICS CANADA AND WHICH INCLUDES THE HAMILTON-WENTWORTH REGION, THE CITY OF BURLINGTON AND GRIMSBY. IT IS A WELL CONTAINED LABOUR MARKET WHERE THE VAST MAJORITY OF RESIDENTS WORK WITHIN ITS BOUNDARIES.

UNDER THE STANDARD INDUSTRIAL CLASSIFICATION (S.I.C.) PUBLISHED BY STATISTICS CANADA, INDUSTRY DIVISION 10 - COMMUNITY BUSINESS AND PERSONAL SERVICE INDUSTRIES, IS COMPRISED OF THE FOLLOWING MAJOR GROUPS:

1. EDUCATION AND RELATED SERVICES;
2. HEALTH AND WELFARE SERVICES;
3. RELIGIOUS ORGANIZATIONS;
4. AMUSEMENT AND RECREATION SERVICES;
5. SERVICES TO BUSINESS MANAGEMENT;
6. PERSONAL SERVICES;
7. ACCOMMODATION AND FOOD SERVICES: AND,
8. MISCELLANEOUS SERVICES.

B. PAST PERFORMANCE

THE BROAD CATEGORY OF "SERVICE" INCLUDES MANY DIVERSIFIED ACTIVITIES. LET ME TRY AND PUT THE SERVICE SECTOR IN METROPOLITAN HAMILTON IN PERSPECTIVE. OUTSIDERS OFTEN HAPPEN TO ASSOCIATE HAMILTON WITH STEEL, WHICH IS RIGHT, BUT THEY TEND TO FORGET OR ARE UNAWARE OF THE MAJOR STRUCTURAL CHANGES THAT HAVE TAKEN PLACE OVER THE LAST DECADE.

THESE STRUCTURAL CHANGES HAVE BEEN IMPACTED BY TWO MAJOR FACTORS. THE FIRST FACTOR IS THE PROXIMITY OF HAMILTON TO TORONTO. IN SOME PEOPLES' MINDS, THIS PROXIMITY HAS HAMILTON BEING VIEWED AS A DORMITORY COMMUNITY SERVICING THE METROPOLITAN TORONTO MARKET.

THERE IS NO DOUBT THAT HAMILTON'S PROXIMITY TO TORONTO HAS

NEGATIVELY IMPACTED THE GROWTH OF CERTAIN SECTORS OF THE SERVICE INDUSTRY. THE PRIME GOAL OF MOST CORPORATIONS IS TO CREATE A PROFIT AND BY LOCATING IN TORONTO MANY SERVICE FIRMS HAVE BEEN IN A POSITION TO SERVICE BOTH TORONTO AND HAMILTON FROM A SINGLE LOCATION.

HOWEVER, THE DRAMATIC INCREASE IN FUEL PRICES AND INFLATION GENERALLY SINCE THE MID 1970'S HAS CAUSED MANY SERVICE FIRMS TO RE-CALCULATE THEIR COSTS OF SERVICING HAMILTON FROM TORONTO, AND TABLE 1 SHOWS A 69% GROWTH IN THE SERVICE SECTOR FROM 1971 to 1981. THE MAJORITY OF THIS GROWTH HAS TAKEN PLACE SUBSEQUENT TO 1976.

IT IS OUR BELIEF THAT THE SO-CALLED DORMITORY FACTOR NO LONGER PLAYS A PART IN THE DEVELOPMENT OF THE SERVICE SECTOR IN HAMILTON-WENTWORTH. HAMILTON HAS, IN FACT, BECOME A REGIONAL SERVICE CENTRE FOR THE NIAGARA PENINSULA.

THE SECOND MAJOR FACTOR THAT HAS HAD A NEGATIVE IMPACT ON THE SERVICE SECTOR GROWTH IN HAMILTON-WENTWORTH HAS BEEN THE SLOW DEVELOPMENT OF AN INTEGRATED TRANSPORTATION PLAN FOR THE REGION WHICH WOULD ALLOW SERVICE COMPANIES BASED IN HAMILTON TO GAIN RAPID ACCESS TO THE Q.E.W., 403 and 401 HIGHWAYS.

POSITIVE STEPS HAVE BEEN TAKEN BY LOCAL, REGIONAL, PROVINCIAL AND THE FEDERAL GOVERNMENT TO IMPROVE THE LOCAL TRANSPORTATION GRID.

TABLE 1

METROPOLITAN HAMILTON EMPLOYED LABOUR FORCE BY INDUSTRY DIVISION
1971 - 1981

	TOTAL 1981	TOTAL 1971	% CHANGE
All Industries	278,220	189,770	+ 47
Agriculture	4,770	3,140	+ 52
Mines (Including Milling), Quarries and Oil Wells	510	320	+ 59
Manufacturing Industries	87,275	69,095	+ 26
Construction Industry	16,010	13,245	+ 21
Transportation, Communication and Other Utilities	14,360	9,580	+ 50
- transportation and storage	8,435	5,865	+ 44
Trade	45,365	30,780	+ 47
Finance, Insurance and Real Estate	13,305	7,870	+ 69
Community, Business and Personal Service Industries	77,400	47,070	+ 69
Education and Related Services	18,590	14,045	+ 32
Health and Welfare Services	19,615	13,030	+ 50
Accommodation and Food Services	13,360	5,915	+126
Public Administration and Defence	10,815	7,055	+ 53
Industry Unspecified or Undefined	8,315	965	

THE TOTAL EMPLOYED FORCE INCREASED BY 47% IN THE PERIOD COVERED BY TABLE 1 WHICH CORRESPONDS TO AN INCREASE IN THE LABOUR FORCE OF 88,540 PERSONS. MANUFACTURING IS STILL THE LARGEST EMPLOYER WITH 87,275 PERSONS IN 1981 AND THE SERVICE SECTOR IS THE SECOND LARGEST WITH 77,400 PERSONS IN 1981. HOWEVER, MANUFACTURING EMPLOYMENT INCREASED BY ONLY 26% IN THE PERIOD AND THE SERVICE SECTOR INCREASED BY 69%.

WHEN TRANSLATING THESE PERCENTAGES INTO ACTUAL NUMBERS, THE INCREASE IN EMPLOYMENT IN MANUFACTURING AMOUNTED TO 18,180 PERSONS. THE INCREASE IN THE SERVICE SECTOR EMPLOYMENT AMOUNTED TO 30,330. WHEN CALCULATING THE PERCENTAGE CONTRIBUTION TO THE TOTAL INCREASE IN EMPLOYMENT, WE FIND THAT MANUFACTURING ACCOUNTED FOR ABOUT 20% AND THE SERVICE SECTOR ACCOUNTED FOR 34%. IT IS OBVIOUS THAT THE SERVICE SECTOR WAS THE MAJOR JOB CREATOR IN THE PAST DECADE. WE SHOULD NOW ASK OURSELVES

WILL THE PAST EXPERIENCE CONTINUE INTO THE FUTURE AND DEPENDING ON A POSITIVE OR A NEGATIVE ANSWER TO THAT QUESTION, TO TRY AND EVALUATE THE FUTURE PROSPECTS FOR THE SERVICE SECTOR.

C. THE FUTURE PROSPECTS FOR THE SERVICE SECTOR

A FIRST STEP IN TRYING TO ASSESS THIS ISSUE IS TO GET A DETAILED LOOK AT THE PROSPECTS FOR THE MORE DETAILED SUB-SECTORS THAT CONSTITUTE THE SERVICE SECTOR.

EDUCATION AND RELATED SERVICES

THIS SECTOR WHICH INCLUDES NURSERY SCHOOLS AND HIGHER EDUCATIONAL SERVICES IS FUNDED BY TAXES AND GRANTS. AS SUCH, IT IS DIRECTLY DEPENDENT ON THREE LEVELS OF GOVERNMENT (FEDERAL, PROVINCIAL AND LOCAL). GROWTH IN THIS COMPONENT OF THE SERVICE SECTOR IS DIRECTLY RELATED TO DEMOGRAPHIC GROWTH AND CHANGES IN THE AGE OF COMPOSITION OF THE POPULATION. GROWTH IN THE HIGHER EDUCATIONAL INSTITUTIONS IS BECOMING MORE AND MORE RELATED TO BUDGETING CONSTRAINTS AND PRIORITY SPENDING DECISION BY THE FEDERAL AND PROVINCIAL GOVERNMENTS, IN ADDITION TO THE DEMOGRAPHIC TRENDS MENTIONED EARLIER.

THE EMERGING TRENDS IN THE FUTURE ARE FOR A FLAT LEVEL IN THE EDUCATIONAL ACTIVITY WHICH WILL BE ACCOUNTED FOR BY DECLINES IN THE ELEMENTARY AND HIGH SCHOOL EMPLOYMENT LEVELS, STABLE UNIVERSITY EMPLOYMENT AND SOMEWHAT INCREASING EMPLOYMENT IN THE COLLEGES AND VOCATIONAL CENTRES, TRADE SCHOOLS AND BUSINESS-ORIENTED COLLEGES.

HEALTH AND WELFARE SERVICES

THIS GROUP INCLUDES AMONG OTHERS, HOSPITALS, OFFICES OF PHYSICIANS AND SURGEONS, DENTISTS, DIAGNOSTIC AND THERAPEUTIC SERVICES AND WELFARE ORGANIZATIONS.

WE ANTICIPATE SUBSTANTIAL GROWTH IN THIS CATEGORY EVEN WHEN TAKING INTO ACCOUNT CURRENT BUDGETARY CONSTRAINTS. ESSENTIALLY, THIS SECTOR IS FUNDED BY THE TAXPAYER. THE AVAILABILITY OF MORE SOPHISTICATED DIAGNOSTIC AND TREATMENT CAPABILITY, AND THE INCREASING DEMAND FOR HEALTH SERVICES WILL MAKE HEALTH SERVICES ONE OF THE

GROWTH SECTORS OF THE ECONOMY. MEDICAL RESEARCH IS EXPANDING AND WITH ITS LARGE DEMAND FOR SUPPORT STAFF, THIS SECTOR PROMISES TO SHOW SUBSTANTIAL GROWTH. THE MAJOR GROWTH IS FORECASTED TO TAKE PLACE IN HOSPITALS AND IN DIAGNOSTIC AND PARAMEDICAL SERVICES.

OUR AGEING POPULATION WILL ALSO CREATE LARGE JOB CREATION OPPORTUNITIES ACROSS THE BOARD FROM TOURISM TO NURSING HOME CARE.

THE WELFARE ORGANIZATIONS WILL BE BUSY WITH THE NEW REALITIES OR PERSISTENT HIGH UNEMPLOYMENT RATE IN THE FUTURE. INDEED, ONE OF THE REALITIES OF THE FUTURE WILL BE THE CONTINUED HIGH UNEMPLOYMENT RATE AND ITS FINANCIAL IMPACT ON GOVERNMENTS' ABILITY TO FUND JOB CREATION.

RELIGIOUS ORGANIZATIONS

A flat growth rate is forecasted.

AMUSEMENT AND RECREATION SERVICES

THIS GROUP INCLUDES MOVIE THEATRES, MOVIE PRODUCTION AND DISTRIBUTION, BOWLING, GOLF CLUBS AND COUNTRY CLUBS, THEATRES AND SHOWS AND OTHER AMUSEMENT SERVICES. A LOOK AT OUR CRYSTAL BALL SUGGESTS THAT WITH THE ADVENT OF AUTOMATION, LEISURE-TYPE ACTIVITIES WILL INCREASE. THIS ENLARGED DEMAND FOR ENTERTAINMENT WILL TRANSLATE ITSELF INTO LARGER DEMAND FOR THIS TYPE OF SERVICE. MANY OPPORTUNITIES FOR SMALL BUSINESS OPERATIONS TO SUPPLY EITHER DIRECT ENTERTAINMENT SERVICES OR TO SUPPORT LARGER CORPORATIONS INVOLVED IN THIS FIELD WILL ARISE. WE SEE THIS SECTOR AS A GOOD GROWTH SECTOR.

SERVICES TO BUSINESS MANAGEMENT

THIS SECTOR INCLUDES A WIDE VARIETY OF BUSINESS SERVICES SUCH AS EMPLOYMENT AGENCIES, COMPUTER SERVICES, ACCOUNTANTS, ETC. AS SUCH, THIS GROUP IS DIRECTLY AFFECTED BY LEVEL OF ACTIVITY IN THE ECONOMY IN GENERAL AND THE METROPOLITAN HAMILTON ECONOMY PARTICULARLY. IF WE ARE TO ASSUME THAT THE RECESSION IS OVER

CREATOR IN THE DECADE OF 1971-1981. LOOKING INTO THE FUTURE, WE STILL SEE THE SERVICE SECTOR AS A MAJOR CONTRIBUTOR; HOWEVER, WITH SOME SHIFT IN DEMAND FOR SERVICES. ON THE DECLINING OR FLAT SIDE, WE FIND EDUCATIONAL SERVICES, RELIGIOUS SERVICES AND PERSONAL SERVICES. ON THE RISING SIDE, WE FIND HEALTH SERVICES, AMUSEMENT AND RECREATION SERVICES, SERVICES TO BUSINESS MANAGEMENT, ACCOMMODATION AND FOOD SERVICES AND MISCELLANEOUS SERVICES. THIS SCENARIO HAS SERIOUS IMPLICATIONS FOR PLANNING FOR ECONOMIC GROWTH BY THE THREE LEVELS OF GOVERNMENT, BUSINESS AND LABOUR AS WELL AS THEIR POLICIES RELATE TO THE SERVICE SECTOR IN OUR AREA AND ITS TOTAL ECONOMIC WELL BEING.

SESSION Id

IS THERE A ROLE FOR LOCAL GOVERNMENTS IN ATTRACTING NEW CAPITAL AND NEW BUSINESS?

BY:

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SESSION Id

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IS THERE A ROLE FOR LOCAL GOVERNMENTS IN ATTRACTING NEW CAPITAL AND NEW BUSINESS?

In the minds of most local politicians, administrators and some concerned citizens, the answer to the question posed in the title of this paper is obvious. It is yes! Indeed, local officials in their zeal to attract new capital and new business claim that local governments play an important role in attracting new development; hence, their justification for municipal expenditures and promotional activities directed towards this end.

While this claim may be evaluated in various ways, any solid assessment must start with a simple economic analysis of whether or not there is a role for local government intervention in economic development activities. This will be done in the section and will be followed by a presentation and evaluation of current local government practices in this area.

Economic Framework

An economic assessment must begin with the condition that economic efficiency is to be maximized. Economic efficiency is to be maximized. Economic efficiency exists when it is impossible to make someone better off without making someone else worse off. If it were possible, through a particular activity, to make one person better off without reducing the economic well-being of a second person, then this activity should be undertaken for it would create a free gain for society.

The achievement of economic efficiency is facilitated when business seeks to maximize profits. Profit maximization guarantees that resources are directed towards the production of goods and services for which the demand is greatest and production costs the lowest. At the same time, free entry and exit of firms from each respective industry will allow any untapped gains to be captured or losses eliminated. When these conditions prevail, the socially optimum or maximum level of output will occur and there is no allocative role for government intervention.

If, on the other hand, economic efficiency is not achieved because of the presence of one or more distortions, government intervention may be justified to correct for these inefficiencies. Distortions arise for various reasons, but the most prominant causes are those which are categorized as third-party effects. Briefly, third-party effects exist when some benefits and/or costs are not born in their entirety by the producers and/or consumers of specific good or service. For example, if the production of some goods and services generates benefits for third-parties (positive externalities), then government intervention may be required in order to secure an optimal level of output. If left to the private sector, the value of the external benefits would not be included in the pricing decision. Hence, economic welfare could be increased through the adoption of specific policies which would increase the level of output. If there were no statutory restrictions, these policies, at the local level, might include cash grants, reduced property taxes or user fees, subsidized land or various other subsidies. Local government involvement in using these policies is justified when the production of goods or services in the local community generates external benefits for the local citizens who, in turn, bear the cost of the subsidies provided. However, these benefits, where they exist, will accrue to both residents and non-residents. To achieve an efficient level of intervention, local residents should fund a subsidy equal to the value of the external benefits falling on local residents only. Positive externalities accruing to non-residents should not be funded by local residents.

Third-party effects are also created when the output of a product or service displays the characteristics of a public good. Pure public goods exist when the quantity produced is equally available to everyone or every business rather than simply being available to those who directly consume them. Since the output of this good or service is available to everyone, beneficiaries are unlikely to reveal their true preferences through the price which they are willing to pay. Instead, each individual or firm will attempt to become a free-rider and to rely on others to express the demand and hence, pay for the output. As long as individuals or firms behave in this manner, underproduction will arise if left to the private sector. To correct for this shortage, government intervention will be required. More specifically, expenditures on economic development policies can be supported if they are directed towards the output of goods or services displaying the characteristics of a public good. The provision of complete and full information on the attributes of particular communities in which businesses might locate is an example of a service with public good tendencies. As such, its provision ought to be supplied through the public sector.

While a case can be made for government intervention when third-party effects are present, the question which must then be asked is whether local government is the appropriate level to undertake this role. In response, the answer is frequently no. When positive externalities exist in the producution of some goods and services, many of these external benefits are likely to fall on non-residents. Since local governments have no mechanism for extracting funds from non-residents in order to compensate for the value of the externality which these individuals receive, a less than optimal level of intervention will occur. To overcome this deficiency and assuming society ought to be interested in maximizing its economic welfare overall, a more senior level of government ought to be charged with correcting for this form of market failure.

Similarily the provision of information, if left to local governments, is unlikely to be supplied at an optimal level. Local governments, in their zeal to attract new development, are almost certain to create an over supply of information. Such an over supply leads to excess expenditures by local governments and a general waste of resources. Controlling or restricting the supply of information can only exist if a more senior level of government regulates what local governments supply, or alternatively collects this information itself through standardized procedures and disseminates it in a uniform and consistent manner to all existing or potential firms and businesses.

Although the case for local government intervention to correct for third-party effects is extremely weak, it might, in some instances, exist. If it does, then the use of local fiscal incentives may be required to seek an optimum level of output. However, this claim that fiscal incentives (a subsidy of some form or other) can lead to an improvement in resource allocation is based on two conditions: first, that revenues collected by local governments and distributed as subsidies do not create distortions or economic inefficiencies for those individuals or firms from whom the revenues are collected; second, that the pursuit of improved resource allocation for on firm or business will lead to an improvement in society's overall allocation only if an efficient level of output already exists or is being pursued by all other businesses. Since neither of these conditions is likely to be met, the use of local subsidies, of any form, to attract new capital and business, further weakens the argument in favour of local government intervention.

Given that there is little, if any role for local government policies designed to promote economic development when markets fail because if the existence of third-party effects, a number of additional arguments have ben advanced for local government intervention. Each of these will be outlined below.

Perhaps the most vocal argument in favour of local government policies for attracting new capital and business revolves around the claim that expenditures or fiscal inducements are necessary to create new jobs. Although this argument has extensive appeal, the proper response is that economic efficiency dictates the support of policies designed to maximize economic well-being and not jobs. Any policy fostering job creation is likely to cost the victims (society who must pay for the inducement) more than beneficiaries receive. If production is only profitable when incentives are given, then production should not take place for these resources are not being used in their most productive area. If production is profitable without incentives, then incentives are not required in any case.

Similarily, local expenditures to attract specific types of businesses such as non-polluting or high technology firms or small businesses tend to be inefficient. If these expenditures are necessary to ensure the firm's survival in this community they should not be provided for they encourage resources to remain in an area in which they are not employed in their best possible use. If these firms can survive without local government incentives, they should not be provided anyway.

The claim that a municipality must incur expenditures or offer inducements to new business because other municipalities are offering similar perks is a claim that is made frequently in favour of government incentives. To counter this argument, it must be stated that if one municipality wishes to subsidize, in some form, its producing units thus allowing suppliers to provide goods and services at prices which would be lower than otherwise, then the residents of other communities should willingly accept the goods at their lower prices rather than retaliating by offering similar incentives. Attempts at retaliatory protection frequently do more harm to their perpetrators than to their intended victims. More important, though, there is no justification for retaliatory policies at the local level. After all, municipalities are creatures of the province and the very minimum that should be achieved is the maximization of provincial economic well-being (if not national economic well-being). Clearly, this maximization cannot be achieved if municipalities are competing with each other through the provision of special concessions in one form or another.

In fact, if local incentives are required to attract new busines, then resources are not being employed in their best use. If the incentives simply entice firms to relocate from one community to another, then such a relocation creates primarily a redistribution of income. This does not generate increased provincial output. When combined with the monetary cost of the incentives themselves, society is almost certain to be a net loser.

From this brief exposition on the role of local government policies in achieving economic efficiency and hence, maximizing society's output comes the conclusion that there is no economic rational for supporting local government policies designed to attract new capital and business. However, this conclusion has not prevented local governments from actively engaging in policies and practices to attract new busines. It is to the current practice which we now turn.

Current Practice

Current practices devoted to attracting new capital and businesses are restricted by the regulations of the **Ontario Municipal Act** (Section 112). Specifically, this regulation states that "Notwithstanding any general or specific Act, a council shall not grant bonuses in aid of any manufacturing business or other industrial or commercial enterprise." Since municipalities cannot use bonusing, of one form or another, to attract new business, industrial commissioners, chambers of commerce, local politicians and civic administrators have attempted to attract new development through advertising one or more of a number of features which suggests that their community has a comparative advantage over competing municipalities. The ultimate pay-off from this activity arises when a new firm or retail establishment is attracted to the community or when an existing business which was going to leave is retained. Securing a new business or retaining an existing one will occur if the owners perceive that their profits can be enhanced, if not maximized, as a result of municipal development policies or practices.

Since profits depend on market demand, availability of a skilled labour force, labour conditions (wages and productivity), access to suppliers, transportation systems etc., and not on local government policies, why do local politicians and administrators continue to emphasize the importance of high profile development policies and activities designed to attract new business? In response, the primary objective (as witnessed at election time and in public speeches) of every municipality is to enlarge its industrial and commercial tax base. Increases in such assessment, it is claimed will generate property tax revenues which are greater than the cost of local government services provided to these establishments. These 'tax profits', can be used to subsidize the cost of supplying services to residential property owners. However, this raises the question of whether there is an economic justification for imposing taxes on non-residential property in excess of the cost of providing services to these properties.

Statutory legislation in Ontario requires all municipalities to impose a property tax on the owner(s) of non-residential property (commercial/residential) at a rate which is 15 percentage points higher (for general purposes) than the corresponding rate imposed on residential property. For school support, the differential is 10 percentage points. In addition, a mandatory municipal business tax on the occupant (whether owner or tenant) is imposed on top of the non-residential assessment base at a rate ranging from 25 percent of property assesment on parking lots to

140 percent of property assessment on distillers.

These higher tax rates on non-residential property generate economic effects which may be undesirable. To the extent that non-residential property consumes local public services or imposes environmental damage on the community, these establishments should be required to pay for these services and for the damages created. Clearly, the most efficient charging policy constitutes equating a per unit tax or charge to the marginal cost of the last unit of service consumed and the value of the environmental damage created in the production of this output. In fact, if municipalities are interested in expanding their economic base, they might begin by collectively agreeing, with statutory approval, to replace the non-residential property and business taxes with a series of user charges or to use the non-residential taxes to finance solely the services used up and environmental damages inflicted in the production of goods and services.

Furthermore, the emphasis which is being placed on expanding the non-residential property tax base through active economic development programs designed to atttract new business has generated voluminous promotional material extolling the virtues of locating in specific communities. However, what seems to have been ignored by most civic officials and many local citizens in their desire to attract new business is that locational decisions follow a distinct economic logic. A firm or business will locate where it can turn a profit. Quality of life, availability of restaurants, cultural and health care facilities, cheaper housing, etc., as outlined in most of the promotional material, are likely to be important only if they affect the firm's profit or if expected profits are estimated to be similar in more than one community.

zero sum game of this nature does not increase society's economic well-being but simply generates a redistribution of income. Undoubtedly, local officials and residents of the community which has been successful in attracting new business (from another community) will feel some sense of satisfaction with their policies. However, one must be reminded that the munitipalities are creatures of the province and the very least that should be expected is a maximization of provincial economic welfare. This can only be achieved if all levels of government work together and engage in policies designed to increase the level of income and not simply redistribute it. In fact, if all the resources used up in bringing about a relocation under current policies are considered, society is likely to be a net loser.

Conclusion

In spite of the claim by local officials that municipalities, through current policies, can attract new capital and business, there is little solid evidence supporting such claims. Local governments have virtually no opportunity to initiate policies which can improve the profits of existing or potential firms. As long as profits depend on market demand and cost factors, then locational decisions depend on market demand and cost factors. Given this, some observers have suggested that local governments be given the right to use fiscal incentives (property tax reductions or subsidies) as a means of making relocation profitable. Fortunately, the opportunity to use fiscal incentives is not allowed in Ontario and should not be allowed in the future.

Location decisions are generally a two-stage process consisting of the selection of a region or metropolitan area, in the first instance, and then selection of a specific site within the region or metropolitan area. Since intraregional or intrametropolitan cost differentials tend to be less than interregional or intermetropolitan cost differences, local subsidies or tax relief would be more effective in the intraregional location decision. However, even here, the effectiveness may be challenged for a decision by one community to offer an incentive would be followed, in all liklihood, by a neighbouring community with no net increase in new businesses and substantial costs (to pay for the fiscal incentive) which must be borne by both residential and non-residential property not receiving the inducement.

In fact, the provision of any fiscal incentive via property tax relief or local subsidies of one form or another, must be seriously questioned for if these are necessary in order to attract new business, then new business is not locating where it can earn its greatest return and resources have been correspondingly misallocated. If the subsidy is unnecessary, then it should not be offered.

To return to the question posed in the title of this paper, the answer should be no. The provision of information to prospective businesses is essential but should be provided through the provincial government in order to prevent the current oversupply and wasted funds. Further improvements in allocative efficiency which may lead, in turn, to the birth of new firms, would involve the replacement of the current system of non-residential taxes with a series of user charges designed to capture only the cost of services supplied and environmental damages created or a restructing of these non-residential taxes to capture the same costs.

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steel industry where it was felt that the industry had allowed itself to fall greatly behind concrete in developing new uses and methodologies for their products. Moreover, even given the current state of the industry, no intensive activity is underway at present in an attempt to correct this situation.

As might be expected none of the executives interviewed considered labour scarcity to be a problem at the current time. This opinion extended to all skill levels of labour. However, with regard to the longer term, some concern was expressed as to possible lack of development of a new skilled labour force. In particular, several people interviewed commented on the difficulty of operating an effective apprenticeship programme because of union concerns over seniority rights.

The question of import competition was of some concern in the primary steel industry, particularly when Japanese products were considered. It was of great concern in the machinery industry. This latter industry is faced with offshore competition from firms in countries who, in some cases, sacrifice superior quality for price and also can aggressively price because of lower costs generated by making large quantities of a limited number of models and thus achieving economies of scale not generally available to the Canadian manufacturer.

On a more general level it was felt that the future was looking brighter with the automobile industry leading the way. Output and employment should be up in the near future both in the region and nationally.

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BACKGROUND PAPERS

DISCUSSION THEME TRACK II

"THE HUMAN RESOURCES DIMENSION"

SESSION IIa

CHANGES IN THE POPULATION AND THE LABOUR FORCE:
IMPLICATIONS FOR THE HAMILTON REGION

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CHANGES IN THE POPULATION AND THE LABOUR FORCE: IMPLICATIONS FOR THE HAMILTON REGION

The purpose of this paper is to provide some background information on changes in the population and labour force. The implications of these changes for the Hamilton region are of particular concern. However, as we demonstrate, the changes in the region are closely linked to those in Canada as a whole. For this reason, and because data are much more abundant at the national than at the regional level, we begin by discussing the Canadian population and labour force and presenting a series of projections for Canada over the next quarter century, based on alternative assumptions about basic demographic trends. These projections are designed to bring out the effects, in particular, of changes in birth, death, and immigration rates. We then turn to the Hamilton region itself, using the Statistics Canada Census Metropolitan Area definition for this purpose. The Hamilton CMA is first compared with Canada and Ontario, and with other CMA's across the country, with regard to its recent population growth, the age distribution of its population, and the "dependency burden" implied by that distribution. The history of population growth in the Hamilton region over the past three decades is then reviewed and compared with the history of growth in Canada and Ontario. Some aspects of the Hamilton labour force are noted and comparisons are made with data for Canada as a whole. Additional observations on the implications of population and labour force trends are provided in the concluding section of the paper.

THE DETERMINANTS OF POPULATION CHANGE

The population at the end of any period is determined precisely by the population at the beginning of the period, the numbers of births and deaths, and the numbers of immigrants and emigrants. For Canada as a whole, immigration is represented by the inflow of people from other countries. For a region within the country -- the Hamilton region, for example -- account must be taken also of the flows of population to and from other regions.

The history of population change in Canada reflects changes in underlying demographic factors. In some periods immigration has been a major factor, the period from about 1900 until the outbreak of World War I being the most prominent example in this century. However, in virtually every decade over the past hundred years and more the greatest share of population growth has been accounted for by natural increase -- the difference between births and deaths. The death rate has declined for as long as records have been available, and it continues to decline at most ages, although probably more slowly than in the past. The decline in the death rate has been more or less smooth. The variations in the birth rate, on the other hand, have been quite pronounced and have been the principal determinant of the changes in growth rates and population age structure that we have witnessed since World War II, and will continue to witness as the future unfolds.

The birth rate declined more or less steadily until the late 1930's. During the war, and more especially immediately after it, the rate rose very sharply, and it remained at what now seem unbelievably high levels right through to the end of the 1950's. It then started to fall, and to fall rapidly. The declines in the 1960's were as sudden and sharp as the increases in the 1940's had been. At the present time the underlying fertility rates -- the rates of birth to women at different ages in the childbearing range -- remain low. In the 1950's, the fertility rates implied almost 4 children per woman if the rates had been maintained; in the late 1970's and early 1980's they imply considerably less than 2 children per woman. A level of just over 2 is needed to maintain the population in the long run, and recent rates are therefore below the natural replacement level. However, the present age structure is such that actual declines probably will not occur for many decades even if fertility continues below the replacement level.

THE DETERMINANTS OF LABOUR FORCE CHANGE

The labour force -- the number of people employed or seeking employment -- is determined by the size and age composition of the population and by the rates of participation of men and women at different ages. The changes in population have had a pronounced effect; in particular, the "baby boom" of the postwar years resulted in large rates of inflow of young workers while the subsequent "baby bust" is now about to reduce those rates very sharply. Changes in participation rates have also had a major effect: the rates for women -- married women in particularly -- have risen markedly in the past three decades, and the rates for men at both the younger and the older ends of the working-age range have fallen sharply. Further changes in participation rates are no doubt in prospect, and these, together with the population trends now underway, will determine the labour force of the future.

THE CANADIAN POPULATION AND LABOUR FORCE: AN INITIAL PROJECTION

We present, in Table 1, a series of projections of the Canadian population and labour force. These projections take off from 1981, the year of the most recent population census, and extend a quarter of a century, to 2006. There are six sets of projections, each based on different assumptions. The first of these, Projection 1, we shall refer to as the "standard" projection. Its assumptions are more or less "middle-of-the-road" and seems to us reasonable in light of recent trends and current circumstances.

Projection 1 makes the following assumptions. The total fertility rate, as it is called -- the average number of children that would be born to a woman over her lifetime -- is assumed constant at 1.7, which was the actual level in 1981, the most recent year for which data are available at the present time. Rates of mortality are assumed to decline, but at a decelerating rate. The latest detailed mortality rates published by Statistics Canada relate to 1976 and we have used these rates as a benchmark; the proportionate declines in mortality from the 1976 levels are assumed to become smaller each year until they cease entirely by 2026. (No one can predict future mortality rates with any degree of precision and our assumption is necessarily rather arbitrary.) With regard to migration, we assume an inflow to Canada of 120,000 per year and an outflow of 40,000, leaving the annual rate of net immigration at 80,000. These migration figures are roughly consistent with recent observed levels. With regard to labour force participation rates we assume some further increases in the rates for women over the age of 25 and some further declines for men in their sixties and older. These, and other participation-rate assumptions, are based on an assessment and extrapolation of recent observed trends.

Let us see,^then, what Projection 1 has to say about the future population and labour force of Canada. The first thing that is apparent from Table 1 is that the rate of growth of the population will decline -- in percentage form starting in 1981 and in actual numbers from 1986 on. From 5.9 percent per half-decade in 1976-81 the rate will drop to 4.2 percent by 1991-96 and to 2.7 percent by 2001-06. As the rate of growth subsides, the age distribution will continue to shift towards the older end of the spectrum. The proportion of population under the age of 5 -- a rough indicator of the relative size of the pre-school population -- will be relatively constant in the 1980's and then will fall in the 1990's: from 7.3 percent in 1981 the proportion is projected to decline to 5.7 percent by 2006. Some decline is also projected for the population in the age group 5-14 and a sharper and earlier decline for the population 15-19. At the same time, the population 65 years of age and over is projected to increase from its 1981 level of 9.7 percent of the total to 11.3 percent by 1991 and 12.8 percent by 2006. The increase in the proportion of older population is, of course, a well known phenomenon. Much has been said in recent years about the "aging" of the Canadian population, and popular treatments of the subject might lead one to believe that the shift was both massive and imminent. The trend towards a higher proportion of older people is important, but it is worth noting that the change is likely to be rather more gradual and less pronounced than might have been thought.

The projected decline in the rate of growth of the labour force is particularly striking and more pronounced than the decline in population growth. From 1976 to 1981, the total labour force increased by 16.7 percent, a very rapid rate attributable in large measure to the influx of "baby boom" children into the working population but also to the continuation of upward trends in the participation rates of women. The rate is projected to fall sharply in this decade, and to continue to fall throughout the remainder of the projection period. The projected rate for 1986-91 is less than half of the 1976-81 rate, and by 2001-06 the projected rate of increase is only 3.0 percent.

The age composition of the labour force is shifting also. In 1981, more than a quarter of the labour force was under the age of 25; by 1991 the proportion will be less than a fifth, and by 2006 it will be close to a sixth. The proportion over the age of 45, which was also a little more than a quarter in 1981, is projected to fall slightly in the first part of the present decade, and then to rise sharply, reaching almost 36 percent by the end of the projection period. Clearly, the rates of inflow of new workers are going to subside and the average age of the working population is going to rise over the next quarter century. The labour force of the future will thus have a higher average level of experience and the problem of absorbing inflows of new workers into the labour market will be greatly reduced.

Table 1 provides also two types of "dependency ratios." One is based solely on population data: it is calculated as the ratio of the total population to the population aged 20-64, the latter being regarded as a rough measure of the number of people in the "economically active" range. The other dependency ratio is calculated as the ratio of total population to total labour force. The dependency ratios based on labour force are higher than those based on population alone but the movements of the two over time are generally similar.

The dependency ratios fall throughout the projection period. On the one hand the proportion of older people in the population is increasing, but on the other the proportion of children is decreasing, and the net effect is a decline. Of course, the relative per capita costs of support for the elderly are not necessarily the same as the costs of educating and raising children. Nevertheless, the patterns of change in the ratios do suggest that the decline in the proportion of young population will act as a major offset to the increase in the proportion who are old. The problem for the future is therefore more likely to be one of adjustment and redeployment of economic resources rather than an increase in the overall "economic burden" to society.

SOME ALTERNATIVE PROJECTIONS

Projections 2-6, as shown in Table 1, represent alternatives to the one just discussed. Their purpose is to draw out the implications of different assumptions about future changes in basic demographic factors.

Projection 2 postulates a return to higher birth rates. The total fertility rate is assumed to rise from a level of 1.7 children per woman in 1981 to a level of 3.0 by 1991, and then to remain at that level. A rate of 3.0 seems extremely high by recent standards. However, it should be kept in mind that (a) it is well below the rates of the late 1940's and the 1950's and (b) that the history of population forecasting is a history of surprises. An increase from 1.7 to 3.0 in the 1980's would be no steeper than the increase that occurred in the 1940's or the decrease that occurred in the 1970's, however unlikely it may seem at the present time.

Projection 2 implies a substantially larger population by 2006 and, of course, higher rates of growth in each decade or half-decade. It also implies a higher proportion of children in the population and less of an increase in the older proportion (although the latter would still increase). The impact on the size of the labour force is less pronounced, and in fact there is no effect at all until the latter part of the 1990's since only then would the larger number of children be entering the labour force. The dependency ratios are higher because of the increased child population, but only a little, and they remain well short of the ratios experienced in Canada as recently as the 1960's.

Projection 3 assumes no change in mortality rates from their 1976 levels. This is certainly unrealistic but it does serve to bring out the implications of alternative assumptions about mortality. What it shows, in particular, is that they are generally much less important than the assumptions about the birth rate. Compared with Projection 1, the increases in population are lower, of course, but the differences are not pronounced for a period as long as 25 years. The differences in labour force growth are even smaller and the dependency ratios are affected very little. The proportion of elderly people is reduced somewhat but the effect is substantially less than that of increasing the assumed level of fertility. Contrary to what is often believed, changes in mortality rates are likely to be a relatively unimportant factor in determining the population characteristics and problems of the next quarter-century.

Projection 4 assumes a higher rate of migration. In particular, it assumes net immigration to Canada of 120,000 per year by 1986, rather than the 80,000 of Projection 1. Immigration, unlike the birth rate, has an immediate and direct effect on the labour force since a high proportion of migrants are in the working-age range, and this is evident from Table 1. Again, though, the effects are less dramatic than those induced by higher fertility levels. The dependency ratios are affected hardly at all and the effects on the age distribution are comparatively minor.

Projections 5 and 6 are intended to display the net effects of "rapid growth" and "slow growth" combinations of assumptions. In Projection 5, the high fertility levels of Projection 2 and the high immigration levels of Projection 4 are combined with a somewhat faster rate of decline of mortality rates than the standard assumption. The result is a Canadian population of about 37.1 million by the year 2006, compared with 29.9 million in the standard projection. Most of the difference is attributable to the assumption of higher fertility rates.

Projection 6 -- the "slow growth" projection -- assumes some further drop in the total fertility rate (from 1.7 to 1.5 children per woman), a smaller volume of net immigration (20,000 compared with the standard assumption of 80,000 per year), and a somewhat slower rate of decline in mortality rates. The result is a population of 27.3 million in 2006 and a reduction of both the population and labour force growth rates to well under one percent per half-decade, which would be very low rates indeed by any historical standards. Under the "slow growth" assumptions there would be some additional increase in the proportion of elderly people in the population, the proportion rising from 9.7 percent in 1981 to 13.4 percent in 2006. Even so, the overall dependency ratios would be a little lower than in the standard case because of the decline in the child population.

POPULATION CHARACTERISTICS OF THE HAMILTON REGION

We turn now to the Hamilton region and consider some of its population characteristics against the background of the Canadian characteristics and prospects, as just discussed. For this purpose we adopt the definition of the Census Metropolitan Area of Hamilton, as employed by Statistics Canada in the 1981 Census. By this definition, the region includes the Cities of Hamilton and Burlington, the Towns of Ancaster, Dundas, Grimsby, and Stoney Creek, and the Townships of Flamborough and Glanbrook. The City of Hamilton accounted for about 57 percent of the total population of the region in 1981, the City of Burlington for about 21 percent, and the other six municipalities combined for the remaining 22 percent. The region is predominantly urban, of course, but there is also a small rural component -- about 8 percent of the population by Statistics Canada criteria at the 1981 Census. In what follows we shall use the terms Census Metropolitan Area (CMA), region, and area interchangeably, but the precise boundaries are those of the CMA.

Table 2 provides a comparison of the Hamilton CMA with the other 23 CMA's defined by Statistics Canada and with Canada as a whole and the Province of Ontario. At about 542,000 in 1981, Hamilton ranked ninth in population size among the 24 Canadian CMA's, and third within Ontario (treating the Ottawa-Hull CMA as an Ontario area). The population of the Hamilton CMA increased by 2.4 percent between the 1976 and 1981 Censuses, well below the rates for both Canada (5.9 percent) and Ontario (4.4 percent), and less than the rate in 16 of the other 23 CMA's. By Canadian standards, the Hamilton rate of growth has thus been quite modest in recent years.

In general terms, the population age distribution in Hamilton is quite similar to the Canadian and Ontario distributions and to the typical distributions in other CMA's. Some 30.6 percent of the population were under the age of 20 in 1981 (compared with 32.0 for Canada and 31.3 for Ontario); 10.2 percent were 65 years of age or older (compared with 9.7 and 10.1). The population dependency ratio (as defined for Table 1) was 1.69, which also is very close to the ratios elsewhere in Canada. (The Canadian ratio was 1.72, the Ontario ratio 1.71.) Broadly speaking, the problems to be faced in the Hamilton region as a consequence of the population age structure are likely to be similar to those faced in most other large urban areas of Canada.

Some further information about population growth is provided in Table 3. Percentage rates of growth are presented for every five-year period from 1951-56 to 1976-81, for the Hamilton CMA and for Canada and Ontario. It is immediately evident that the Hamilton rate of growth has fallen, both markedly and continuously, over the past three decades. From extremely rapid rates of 21.1 and 17.5 percent in 1951-56 and 1956-61, the Hamilton rate fell to 5.2 percent in 1971-76, and then to 2.4 percent in 1976-81. In the period 1951-66, the Hamilton rate exceeded both the Canadian and Ontario rates; since 1971 it has been well below them.

A simple plotting of the Hamilton area growth rates against the rate for Canada reveals an interesting relationship (See Chart 1.). While the Hamilton rates were higher than the Canadian ones in the earlier periods and lower in the more recent ones, the patterns of decline have been very highly correlated. A simple regression analysis indicates that about 94 percent of the variation in the Hamilton rate could be "explained" by variations in the Canadian rate. (The regression line fitted to the Hamilton and Canadian rates is shown also in Chart 1.) There is no guarantee that the relationship will remain as close in the future but the strength of the relationship is rather remarkable. If nothing else, it serves to underline the fact that the basic demographic trends discussed in the previous section in connection with the Canadian population are highly relevant also at the regional level. The population problems and prospects to be faced in the Hamilton area are, in large measure, national in scope.

SOME LABOUR FORCE CHARACTERISTICS OF THE HAMILTON REGION

Labour force data are much less abundant at the local or regional level than at the all-Canada level. However, a few observations about the Hamilton labour force are possible, based on estimates provided by the Statistics Canada Labour Force Survey.

The average rate of unemployment in the Hamilton region is estimated to have been 11.8 percent in 1982. The rate is somewhat higher than both the Canadian (11.0) and Ontario (9.8) rates. However, it should be kept in mind that the accuracy of the Labour Force Survey sample estimates is necessarily lower at the regional level than at the provincial and national levels, and the 11.8 figure should be regarded as a rather rough approximation. In each of the years 1976-81, the Hamilton unemployment rate appears to have been lower than the Canadian and Ontario rates, and the 1982 level represents a rather sharp upward movement, both absolutely and in relation to other areas. Current indications are that the Hamilton rate remains at a level at least as high as the national rate.

Year-to-year differences notwithstanding, the movements of the Hamilton unemployment rate have been highly correlated with those of the national rate ever since the middle of the 1970's. Based on a regression analysis of data for the years 1975-82, about 80 percent of the variation of the Hamilton rate can be "explained" in terms of changes in the national rate. The Hamilton labour market is strongly influenced by the same forces that affect other labour markets across the country and the economic prospects for the area are closely tied to the prospects for the Canadian economy as a whole.

Labour force participation rates in the Hamilton area have also reflected the national trends. In 1975, an estimated 60.9 percent of the noninstitutional population 15 years of age and over belonged to the labour force in the Hamilton area; as a consequence of changes in population age structure and the continuing increases in the participation of women, the overall rate had risen to 66.2 percent by 1982. Regression analysis indicates that about 85 percent of the variation in the Hamilton rates over the 1975-82 period can be "explained" by reference to the national rates. The conformity of basic labour force trends in Hamilton with those of other regions is again apparent.

SOME CONCLUDING OBSERVATIONS

The rate of population growth has slowed markedly, both in the Hamilton region and in the country at large. Unless there is a sharp and unexpected rise in the birth rate or in the annual rate of immigration we can expect growth rates to decline further, although the greatest declines are likely to come in the 1990's and later. Of course, local conditions can offset national trends: a major expansion of economic activity in an area can serve to draw in population from other areas and a major contraction can have the opposite effect. However, the recent history of the Hamilton region suggests that the basic national demographic trends will be the dominant influences, and on that basis the outlook is for relatively slow population and labour force growth during the next quarter-century.

The shift in age distribution that is now underway will continue into the 1990's and beyond, barring again any major unforeseen development. The school-age population as a percentage of the total may level off in the late 1980's, but then drop a little further as we move into the next century. A sharp upward movement of the birth rate could change the outlook, of course, but even then the effects would be felt rather slowly: six years would elapse before the effects began to be felt in the primary schools and some fourteen years or so before the high schools were affected. Given that any increase in the birth rate would have to take place over a period of years, major effects on even the primary school system are virtually ruled out at least until the 1990's -- and, to repeat, there is no indication that such an increase will take place in any event, although surprises are certainly possible.

The proportion of older population will certainly become greater, and this has important implications for programs of support for the elderly. Health care costs rise sharply with age and aggregate expenditures on health that the accuracy of the Labour Force Survey sample estimates is necessarily lower at the regional level than at the provincial and national levels, and the 11.8 figure should be regarded as a rather rough approximation. In each of the years 1976-81, the Hamilton unemployment rate appears to have been lower than the Canadian and Ontario rates, and the 1982 level represents a rather sharp upward movement, both absolutely and in relation to other areas. Current indications are that the Hamilton rate remains at a level at least as high as the national rate.

Year-to-year differences notwithstanding, the movements of the Hamilton unemployment rate have been highly correlated with those of the national rate ever since the middle of the 1970's. Based on a regression analysis of data for the years 1975-82, about 80 percent of the variation of the Hamilton rate can be "explained" in terms of changes in the national rate. The Hamilton labour market is strongly influenced by the same forces that affect other labour markets across the country and the economic prospects for the area are closely tied to the prospects for the Canadian economy as a whole.

Labour force participation rates in the Hamilton area have also reflected the national trends. In 1975, an estimated 60.9 percent of the noninstitutional population 15 years of age and over belonged to the labour force in the Hamilton area; as a consequence of changes in population age structure and the continuing increases in the participation of women, the overall rate had risen to 66.2 percent by 1982. Regression analysis indicates that about 85 percent of the variation in the Hamilton rates over the 1975-82 period can be "explained" by reference to the national rates. The conformity of basic labour force trends in Hamilton with those of other regions is again apparent.

SOME CONCLUDING OBSERVATIONS

The rate of population growth has slowed markedly, both in the Hamilton region and in the country at large. Unless there is a sharp and unexpected rise in the birth rate or in the annual rate of immigration we can expect growth rates to decline further, although the greatest declines are likely to come in the 1990's and later. Of course, local conditions can offset national trends: a major expansion of economic activity in an area can serve to draw in population from other areas and a major contraction can have the opposite effect. However, the recent history of the Hamilton region suggests that the basic national demographic trends will be the dominant influences, and on that basis the outlook is for relatively slow population and labour force growth during the next quarter-century.

The shift in age distribution that is now underway will continue into the 1990's and beyond, barring again any major unforeseen development. The school-age population as a percentage of the total may level off in the late 1980's, but then drop a little further as we move into the next century. A sharp upward movement of the birth rate could change the outlook, of course, but even then the effects would be felt rather slowly: six years would elapse before the effects began to be felt in the primary schools and some fourteen years or so before the high schools were affected. Given that any increase in the birth rate would have to take place over a period of years, major effects on even the primary school system are virtually ruled out at least until the 1990's -- and, to repeat, there is no indication that such an increase will take place in any event, although surprises are certainly possible.

The proportion of older population will certainly become greater, and this has important implications for programs of support for the elderly. Health care costs rise sharply with age and aggregate expenditures on health care may be expected therefore to increase. Projections at the national level suggest that real per capita costs, averaged over the whole population, may rise by 10-15 percent in the next 25 years solely as a result of the changing age distribution. That is a substantial increase but it is perhaps less than popular treatments of the aging "problem" would lead one to believe. Moreover, the effect of the increase is seen to be much less when account is taken not only of the health care costs themselves but also of the economy's ability to meet them -- of the gross national product from which must come the resources needed to provide the services. When proper allowance is made for this, it is estimated that the additional costs by the year 2006 will probably be well under one percent of the GNP. One does not want to belittle the problem of providing services to the elderly population in the years ahead but it is important to see the problem in proper perspective. The aging of the population that we are now witnessing does not imply a crisis but merely a need for careful planning and anticipation. In that regard, the 1980's are no different from earlier decades.

TABLE 1: PROJECTIONS OF THE CANADIAN POPULATION AND LABOUR FORCE

	1981	1986	1991	1996	2001	2006
PROJECTION 1 (STANDARD)						
Population ('000)	24,343	25,719	27,050	28,188	29,116	29,905
- increase ('000)	1,350	1,376	1,331	1,138	928	789
- % increase	5.9	5.7	5.2	4.2	3.3	2.7
- % under age 5	7.3	7.4	7.2	6.5	5.9	5.7
- % aged 5-14	15.2	14.0	14.0	14.0	13.2	12.2
- % aged 15-19	9.5	7.5	6.7	6.5	6.8	6.7
- % aged 65 and over	9.7	10.5	11.3	12.0	12.5	12.8
- pop. dependency ratio	1.72	1.65	1.64	1.64	1.62	1.60
Labour Force ('000)	12,153	13,372	14,353	15,204	15,985	16,464
- increase ('000)	1,742	1,219	981	851	781	479
- % increase	16.7	10.0	7.3	5.9	5.1	3.0
- % under age 25	26.2	22.0	18.2	16.7	16.5	16.8
- % aged 45 and over	26.2	25.6	26.4	29.2	32.3	35.8
- LF dependency ratio	2.00	1.92	1.88	1.85	1.82	1.82
PROJECTION 2 (HIGHER FERTILITY)						
Population ('000)	24,343	26,073	28,472	30,960	33,155	35,269
- increase ('000)	1,350	1,730	2,399	2,488	2,195	2,114
- % increase	5.9	7.1	9.2	8.7	7.1	6.4
- % under age 5	7.3	8.7	10.6	10.3	9.1	8.6
- % aged 5-14	15.2	13.8	14.5	17.3	18.9	17.8
- % aged 15-19	9.5	7.4	6.4	6.0	7.0	8.7
- % aged 65 and over	9.7	10.2	10.8	10.9	10.8	10.8
- pop. dependency ratio	1.72	1.67	1.73	1.80	1.85	1.85
Labour Force ('000)	12,153	13,372	14,353	15,204	16,136	17,281
- increase ('000)	1,742	1,219	981	851	932	1,145
- % increase	16.7	10.0	7.3	5.9	6.1	7.1
- % under age 25	26.2	22.0	18.2	16.7	17.2	20.7
- % aged 45 and over	26.2	25.6	26.4	29.2	32.0	34.1
- LF dependency ratio	2.00	1.95	1.98	2.04	2.05	2.04
PROJECTION 3 (1976 MORTALITY)						
Population ('000)	24,343	25,656	26,896	27,920	28,718	29,368
- increase ('000)	1,350	1,313	1,240	1,024	798	650
- % increase	5.9	5.4	4.8	3.8	2.9	2.3
- % under age 5	7.3	7.4	7.2	6.6	6.0	5.7
- % aged 5-14	15.2	14.0	14.0	14.0	13.4	12.3
- % aged 15-19	9.5	7.5	6.7	6.6	6.8	6.8
- % aged 65 and over	9.7	10.3	11.1	11.5	11.6	11.9
- pop. dependency ratio	1.72	1.65	1.64	1.63	1.61	1.58
Labour Force ('000)	12,153	13,360	14,324	15,153	15,903	16,345
- increase ('000)	1,742	1,207	964	829	750	442
- % increase	16.7	9.9	7.2	5.8	4.9	2.8
- % under age 25	26.2	22.0	18.2	16.7	16.6	16.8
- % aged 45 and over	26.2	25.5	26.2	29.0	32.2	35.5
- LF dependency ratio	2.00	1.92	1.88	1.84	1.81	1.80

(Continued...)

TABLE 1 (continued)

	1981	1986	1991	1996	2001	2006
PROJECTION 4 (MORE IMMIGRATION)						
Population ('000)	24,343	25,830	27,494	28,994	30,302	31,486
- increase ('000)	1,350	1,487	1,664	1,500	1,308	1,184
- % increase	5.9	6.1	6.4	5.5	4.5	3.9
- % under age 5	7.3	7.4	7.3	6.6	6.1	5.8
- % aged 5-14	15.2	14.0	14.0	14.1	13.4	12.4
- % aged 15-19	9.5	7.5	6.7	6.5	6.8	6.7
- % aged 65 and over	9.7	10.5	11.2	11.6	12.1	12.4
- pop. dependency ratio	1.72	1.65	1.64	1.64	1.62	1.59
Labour Force ('000)	12,153	13,438	14,614	15,677	16,687	17,404
- increase ('000)	1,742	1,285	1,176	1,063	1,010	717
- % increase	16.7	10.6	8.7	7.3	6.4	4.3
- % under age 25	26.2	22.1	18.1	16.6	16.4	16.8
- % aged 45 and over	26.2	25.6	26.0	28.6	31.6	34.9
- LF dependency ratio	2.00	1.92	1.88	1.85	1.82	1.81
PROJECTION 5 (RAPID GROWTH)						
Population ('000)	24,343	26,188	28,945	31,855	34,516	37,131
- increase ('000)	1,350	1,845	2,757	2,910	2,661	2,615
- % increase	5.9	7.6	10.5	10.1	8.4	7.6
- % under age 5	7.3	8.7	10.7	10.4	9.2	8.7
- % aged 5-14	15.2	13.8	14.5	17.2	19.0	17.9
- % aged 15-19	9.5	7.4	6.3	5.9	7.0	8.6
- % aged 65 and over	9.7	10.2	10.6	10.8	10.6	10.5
- pop. dependency ratio	1.72	1.67	1.73	1.80	1.84	1.85
Labour Force ('000)	12,153	13,438	14,615	15,680	16,845	18,241
- increase ('000)	1,742	1,285	1,177	1,065	1,165	1,396
- % increase	16.7	10.6	8.8	7.3	7.4	8.3
- % under age 25	26.2	22.1	18.1	16.6	17.3	20.6
- % aged 45 and over	26.2	25.6	26.0	28.6	31.3	33.3
- LF dependency ratio	2.00	1.95	1.98	2.03	2.05	2.04
PROJECTION 6 (SLOW GROWTH)						
Population ('000)	24,343	25,523	26,321	26,839	27,131	27,256
- increase ('000)	1,350	1,180	798	518	292	124
- % increase	5.9	4.8	3.1	2.0	1.1	0.5
- % under age 5	7.3	7.2	6.5	5.7	5.2	5.0
- % aged 5-14	15.2	14.0	13.8	13.3	11.9	10.8
- % aged 15-19	9.5	7.6	6.8	6.7	6.8	6.3
- % aged 65 and over	9.7	10.5	11.6	12.3	12.9	13.4
- pop. dependency ratio	1.72	1.65	1.63	1.61	1.58	1.55
Labour Force ('000)	12,153	13,296	14,079	14,713	15,228	15,340
- increase ('000)	1,742	1,143	783	634	515	112
- % increase	16.7	9.4	5.9	4.5	3.5	0.7
- % under age 25	26.2	22.0	18.1	16.6	16.3	16.2
- % aged 45 and over	26.2	25.8	26.6	29.8	33.1	37.1
- LF dependency ratio	2.00	1.92	1.87	1.82	1.78	1.78

NOTE: Population and labour force increases relate to previous five-year periods. Population dependency ratio is total population divided by population aged 20-64. Labour force dependency ratio is total population divided by labour force.

TABLE 2: SELECTED POPULATION CHARACTERISTICS: CANADA, ONTARIO, AND CENSUS METROPOLITAN AREAS, 1981

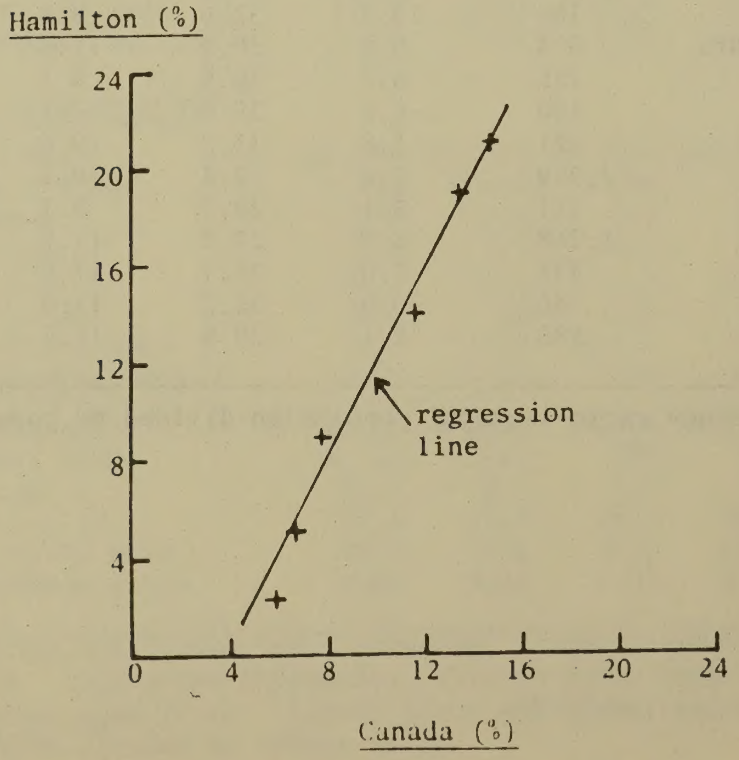
	Population ('000)	% Increase since 1976	% Under age 20	% Aged 65 and over	Pop. dependency ratio
CANADA	24,343	5.9	32.0	9.7	1.72
ONTARIO	8,625	4.4	31.3	10.1	1.71
CENSUS METROPOLITAN AREAS					
- Calgary	593	25.7	30.5	6.1	1.58
- Chicoutimi-Jonquière	135	5.1	34.4	6.0	1.68
- Edmonton	657	18.1	31.9	6.6	1.63
- Halifax	278	3.6	32.0	7.9	1.66
- Hamilton	542	2.4	30.6	10.2	1.69
- Kitchener	288	5.7	32.8	8.9	1.72
- London	284	4.9	30.0	10.1	1.67
- Montreal	2,828	0.9	28.9	9.2	1.62
- Oshawa	154	14.1	33.7	7.5	1.70
- Ottawa-Hull	718	3.6	30.6	8.1	1.63
- Quebec	576	6.3	30.1	8.3	1.62
- Regina	164	8.7	33.3	9.2	1.74
- Saint John	114	1.0	33.9	10.4	1.80
- Saskatoon	154	15.3	32.0	9.5	1.71
- St. Catharines-Niagara	304	0.8	30.9	11.5	1.74
- St. John's	155	6.5	36.5	8.1	1.81
- Sudbury	150	-4.5	35.9	7.1	1.75
- Thunder Bay	121	1.8	31.0	10.6	1.71
- Toronto	2,999	7.0	29.3	9.1	1.62
- Trois-Rivières	111	5.1	29.7	9.1	1.63
- Vancouver	1,268	8.7	27.2	11.5	1.63
- Victoria	233	7.0	25.1	17.0	1.73
- Windsor	246	-0.6	32.2	11.0	1.76
- Winnipeg	585	1.1	29.9	11.5	1.71

NOTE: Population dependency ratio is total population divided by population aged 20-64.

TABLE 3: POPULATION GROWTH RATES SINCE 1951: A COMPARISON OF THE HAMILTON CENSUS METROPOLITAN AREA WITH CANADA AND ONTARIO

	Percentage increase in population		
	Canada	Ontario	Hamilton CMA
1951-56	14.8	17.6	21.1
1956-61	13.4	15.4	17.5
1961-66	9.7	11.6	14.0
1966-71	7.8	10.7	9.0
1971-76	6.6	7.3	5.2
1976-81	5.9	4.4	2.4

CHART 1: POPULATION GROWTH IN HAMILTON AND CANADA, 5-YEAR RATES, 1951-56 TO 1976-81



SESSION IIb

The Impact of Chip Technology on Employment and Industrial Relations

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Constant technological change has long been an important characteristic of industrial evolution in the Western world.[1] The two most important enabling technologies in the post war period are automation and microelectronics or chip technology. The first one began in the 1950's and the second in the 1970's, and is now in progress. The chip technology is different from the previous technological innovations in that it can be adopted in practically all sectors of the economy and thereby affect a wide range of activities from production to distribution to consumption. It promises to bring about significant structural changes. For instance, while the conventional mass production or assembly line system, in part because of economies of scale, was suited to large scale enterprises such as Stelco, Dofasco, Firestone, Ford, and General Motors, in industries such as steel, rubber, automobile etc., the chip technology can be employed by small and medium enterprises since it is suited to produce a variety of products in small quantities.

Microelectronics (ME) technology takes at least two forms: office and factory automation. In the factory, many jobs in manufacturing which required human intelligence can now be performed with machine intelligence, first by simplifying products and second by automating the production processes. Numerous products have been simplified over the past few years. For example, an electronic watch now requires the assembly of only five components compared with some 1000 assembly operations for a mechanical watch; in the manufacture of sewing machines, one microprocessor has replaced 350 mechanical parts. The production process is automated through the application of computer assisted design and computer assisted manufacturing (CAD/CAM), robots, computer controlled machine tools and automated material handling techniques. Robots in manufacturing can be used for metal pressing, welding, machining, painting, casting and forging. Robots can be used in dull, repetitive, and hazardous jobs with excessive noise and high temperature.[2] The CAD/CAM or automation of automobile factories in North America has made them twice as efficient as their less automated counterparts in the U.K.; the most automated auto factories in Japan using these (CAD/CAM) techniques, including extensive use of robotics, are twice as efficient as the North American auto plant.[3]

Office automation is expected to replace the familiar "stand-alone" typewriter, filing cabinet, telephone, and office copier by a single office communications and information processing network. For example, electronic filing will replace the present paperbased memoranda, business manuals, directives, notices and directories with storage of this information in voice, graphic and textual forms accessible electronically by employees, and multifunction workstations will make it possible for office workers, support staff and managers to make simple telephone calls, leave digitally encoded voice messages, activate microelectronically controlled copiers, print forms or letters, and write and/or edit reports or memos. In turn, all work stations will be linked to computer data base, a duplicating and printing centre and a communication centre.[4]

The emergence and widespread adoption of microelectronics (ME) technology has serious implications for both employment and industrial relations. The Task Force on Microelectronics and Employment, created by the Federal Labour Minister in March 1982 examined these implications in its November 1982 report to the Minister. As a member of the task force, I helped develop recommendations in these areas. The remainder of this paper will be devoted to a discussion of the proposals made by the Task Force (TF) concerning employment and industrial relations and wherever possible to relate these to the developments in the Western Lake Ontario Growth Corridor (including Hamilton, Wentworth County, Burlington, and the Corridor to Nanticoke).

Technology: The TF clearly and unequivocally endorsed the introduction of ME technology in Canada. We recommended that Canada needs to encourage and support the continued development of high technology industries and the diffusion of their products and services in the Canadian economy. This is based on the assumption that ME technology has the potential to create jobs, to increase productivity, to improve economic growth, and to enrich personal development. One of the very first and a central recommendation of the TF was to establish a federally funded Centre of Technology, Work and Human Priorities.[5] The Centre was to have representation from labour, management, government and other important sectors and its mandate involved three main functions: job creation, public information and research, and monitoring. On April 19, 1983 the recommendation to establish such a Centre to be called a National Centre for Productivity and Employment Growth was announced in the budget speech by the Federal Finance Minister, Mr. Marc Lalonde. On August 3, 1983, the then Federal Labour Minister Charles Caccia and his colleage Ed Lumley, Minister of Industry, Trade & Commerce and Regional Expansion appointed a Steering committee for the Centre to examine the issues of productivity, technology and employment growth and to make proposals concerning the objectives, mandate, role, structure and financing of the Centre.

The TF believed that there was a direct link between ME technology and jobs. To resist the adoption of the new technology would be counterproductive. Several studies commissioned by the TF[6] and public representations[7] made it clear to us that by resisting the introduction of ME technology, (1) Canadians stand to lose more jobs than by adopting it, (2) Canada's export dependence will be severely and adversely affected (since about 25 to 30 percent of Canada's output is sold in foreign markets), and that (3) autonomy of decision-making would be seriously affected.[8]

The Hamilton-Burlington region: This region is centrally located and is in an enviable position for the adoption of ME technology in not only existing industries but also in attracting and developing new industries. First, the region is close to five of Canada's leading universities which can assist industries and enterprises in R & D, training of personnel etc. in ME. In addition, McMaster University's Canadian Institute of Metalworking, the only private self-sustaining centre in Canada, carries out R & D and assists industry personnel in training and retraining in CAD/CAM. The other CAD/CAM Centre is in Cambridge and has been set up and financed by the Provincial Government.

Second, the region is located in the midst of a strong market for its products. It has a heavy manufacturing base (such as steel, rubber and auto industries). The area can capitalize on its existing strengths in these industries. For example, the manufacture of automated machinery is a natural outgrowth of heavy industry which now employs highly skilled tradesmen and engineers. This is especially important in view of the fact that there is expected to be a continuing need for tool and die makers, general machinists, welders, wood patternmakers, electrical repairers with electronic skills, millwrights and instrument mechanics.[9] In medical research, the expertise at McMaster Medical Centre could provide the impetus for new biological and medical technologies.[10]

Third, Hamilton's so-called smoke-stack industries or 'mature' industries need not be sunset industries. They can continue to prosper-perhaps at a less rapid rate than before - if they keep abreast of latest developments and continue to adopt the latest technologies; further refinements might be needed in the already technologically superior (to the USA) steel industry, for example.

Existing mature companies such as Westinghouse can continue to develop trade with Third World Countries. In fact, the company aims to export half its output by 1990, with the largest portion coming from its sales of small electrical generating stations, using combustion turbines.[11] This is consistent with Ontario's dependence on world trade - close to 35 percent of Ontario's output is sold abroad relative to 25 to 30 percent for Canada. These developments in world trade and continued prosperity of this region's industries are contingent on sound and harmonious labour-management relations.

Industrial Relations: One of the tasks of the proposed Productivity Centre is to have continuous consultations between labour and management. It is based on the recognition that microchip technology cannot be utilized efficiently in an environment of confrontation and agitation that arises due to a conflict between "management's prerogatives" and workers concern for "job security." Canada cannot afford the social unrest that would inevitably occur if managements and unions repeat the mistakes made by the Canada Post Office during its early phases of postal automation in the late 1960's and early 1970's.

An example of this assumption by the TF is contained in the forward-looking Committee on The Future Report which took two years drafting proposed changes and recommendations. The report was prepared for the special convention of the Communication Workers of America which was held on March 28, 1983. In this report, the Committee recommended new approaches to grievance handling through joint problem-solving and a less confrontational approach by union to management in order to meet the challenge of the ME technology. (The Committee's Report goes on to recommend that the union become a technologically sophisticated union, with electronic mail and membership lists, computer teleconferencing and computer-aided learning.)

Labour-management cooperation is required because (a) Joint problem-solving, innovation and adaptation is necessary in view of the fast changing technology; (b) Society expects business and labour to act responsibly and holds them socially accountable; (c) There is a growing emphasis on self-actualization and self-determination as represented by greater rank-and-file direction of collective-bargaining within unions and in greater worker demands for some form of "industrial democracy" within unions as well as management; (d) There is a growing awareness that sustained rapid growth of productivity requires active cooperation among workers, unions and management since productivity growth is vital to all three parties; and (e) There is a greater aceptance now, than before, of individual and group entitlements and rights as represented by several recent developments: (i) the enactment of human rights statutes in all jurisdictions in Canada, (ii) the Charter of Rights and Freedoms as part of our newly repatriated Constitution (1982) and (iii) the Freedom of Information legislation enacted in 1982 and proclaimed in July 1983,[12] as well as (iv) widespread protests in British Columbia against the threatened abrogation of some of these rights such as human rights by the B.C. government.

There are indications that one of the consequences of the deep recession of 1981-82 is that management and labour may have learned how to deal with their problems on a more constructive and cooperative basis than in the past which has predominantly been characterized by adversarial approaches. For example, after a number of years of heavy industrial conflict, the number of work stoppages and person-days lost in the past two years has dropped about one-third.[13]

The TF made the following recommendations based on the above-mentioned assumptions:

(1) To amend and broaden the present (as of 1972) definition of

technological change in the Canada Labour Code to assure that discussion is activated as soon as management proposes to introduce any new equipment or material which could affect, either directly or indirectly the working conditions or job security of any employee.[14]

(2) To create mandatory joint-technology committees in both unionized and non-unionized establishments of 50 or more employees under the jurisdiction of the Canada Labour Code. Such committees would deal with issues like training, re-training, redundancy, work sharing, and productivity improvements and other matters that result from the introduction of technological changes at the workplace.[15]

(3) To assure that timely measures designed to ease the negative effects of a technological change on the employment of all workers are taken, the employer must be required to provide a minimum of 180 days notice of a proposed change (instead of the present requirement of 90 days notice) and

(4) That disputes concrning the powers and functions of joint technology committees or the adequacy of propsed adjustment plans be submited for resolution by binding arbitration.

The most important and far-reaching industrial relations-related recommendation calls for establishment of a joint technology committee at all enterprises of 50 or more employees under federal jurisdiction. However, this recommendation merely extends existing legislation. For example, in 1979, a federally appointed Commission of Industry Inquiry on redundancies and layoffs recommended "effective joint consultation" on a regular basis at the enterprise level, and suggested that a standing "works council" be established for initiating such consultation. The resulting legislation, the Labour Adjustment Benefits Act (an Act to provide for the payment of benefits to laid-off employees and to amend the Canada Labour Code) goes beyond the Commission's recommendation. Under the Act, if an employer plans to terminate

50 or more employees withing a 4-week period, a joint planning committee must be established. (In case of mass layoff, the employer is required to provide 16 weeks of advance notice.) In nonunion establishments, employees can choose one-half of the committee members. If the committe fails to agree on all issues within 6 weeks, the unresolved issues may be submitted for arbitration. The arbitrator may first try to meddiate, but if this effort is not successful, must decide on the outstanding issues within 4 weeks. This legislation establishes a bargaining relationship, as opposed to consultation process envisioned by the Commission of Industry Inquiry. The Task Force on Micro-electronics and Employment, convinced that technological change can only be successful if workers are consulted in advance of a change, went one step further and recommended mandatory joint technology committees.

The task force decisions regarding industrial relations were influenced by policy developments in Western Europe, and especially in the Scandinavian countries[16] where employers are required to provide detailed information and to consult with their employees prior to introducing a technological change. The mandatory creation of bipartitie committees, operating at the level of individual establishments, to help plan for change is a common feature of the regulatory schemes. Most schemes provide for dispute settlement, and many provide for compensation for displaced workers, either through a layoff plan or through a general redundancy fund.

Employment: At the enterprise level, joint technology committees are seen as a mechanism to design adjustment plans which are adequate to offset any anticipated negative employment effects of technological change. At the macro level, however, two quite different views have evolved on the impact of ME technology on employment and mechanisms to deal with this impact. One, pessimistic, view might be called "massive unemployment"; the other, a "business as usual", or optimistic view.

The perceived problems of massive unemployment resulting from ME technology haunt the pessimists. A recent[17] study for the federal government indicates that between one million and two million jobs in Canada will disappear by 1991 because of technological and structural change in the economy. The study predicts that between one-quarter and one-half of all jobs in manufacturing and one-quarter of all jobs in business and financial services will be eliminated by the end of this decade. In addition, it says, an estimated two million more people will need and want to work by 1991.[18] Canada's former Minister of Employment and Immigration recently confirmed that alarm and sometimes "outright panic" about job losses are replacing the conviction that technological progress would provide economic security. He suggested, however, that neither the most gloomy predictions of massive job losses and corresponding social upheaval nor the most optimistic forecasts have any proof more solid than "spit in the wind" for their arguments about the probable impact of technological change. "The fact of the matter is", he said, "I don't think anyone knows."[19]

The Task Force had come to the same conclusion several months earlier. The report pointed out that

> "To date, there has been no serious effort, over time, to determine the possible effects of even one aspect of the new technology — of microprocessors -- on employment totals. Such an analysis would have to include not only the direct net employment effects but also the effects on the infrastructure of the technology, on companies connected to new technology by forward and backward linkages, on the general form of employment associated with the provision of services to all enterprises, and on employment derived from expenditures or incomes earned by all the factors of production participating in the technological change. Most forecasts to date

relate only to the effects on the infrastructure of the technology and on companies connected to the new technology which have been extrapolated to the whole of the economy.[20]

The Task Force report leans toward "cautious optimism". On the one hand, ME creates new jobs for people such as

> "systems analysts, programmers, software researchers and designers, and data analysts. These positions require high qualifications. The hardware area needs skilled people with an electrical engineering background to design the chips and their applications, whereas the software area is booming with openings for those who understand control, production and operational systems."[21]

On the other hand, ME has an effect on many sectors of the economy. It can cause job destruction in very specific segments of the labour market such as for new entrants to the labour force, older workers - who have less flexibility in retraining, re-education, and relocation - middle managers, as well as lower-level skilled labour force. Women are particularly vulnerable because they are clustered in a few job ghettos, such as clerical, sales and service. These jobs are largely non-unionized and generally offer low wages, little job security and poor benefits; moreover, existing skills of many female workers may not be those that will be needed in the future.[22]

While ME may not lead to massive unemployment for workers, it will have important implications for their training, especially in the case of workers noted above. In the past, technology has created enough new employment opportunities to enable societies to adjust to technological-economic changes within reasonable periods of time. If this is to persist as a pattern in the future, training, retraining and other adjustment policies will be needed.

Education and training: To facilitate this adjustment, the TF made several recommendations. Some of these included (a) that Canadian education policies and programs emphasize flexibility and adaptability to change by promoting a philosophy of life-long learning and the teaching of such lifetime skills as problem solving and decision making; (b) that the federal government establish a Registered Training and Education Leave Saving Plan to help individual Canadians take the initiative in planning and paying for their educational and training needs; (c) that unions negotiate educational leave provisions in collective bargaining agreements; (d) that displaced workers be trained to assist them to develop new and marketable skills, and (e) that new courses be added to school curriculum to ensure computer literacy.[23]

Summary and Conclusions: ME technology can affect all work activities. While this technology may be neutral in its abstractions, it is not necessarily so in its applications. While the new technology can facilitate the coming of an information society with a qualitative difference, it cannot do so on its own initiative. That choice, in my opinion, is ultimately the function of public policy. A reactive rather than a proactive approach can result in technological determinism with its attendant social costs.

The federal TF, of which I was a member, recommended that Canada encourage and support the continued development of high technology industries since Canadians stand to gain more jobs by the adoption of ME technology than by resisting it. Because of its central location, the Hamilton-Burlington region is in a good position to (a) adopt the ME technology in existing industries, thereby continuing to keep them competitive in world trade and (b) attract and develop new industries. However, in order to continue to prosper and grow, this area's industries need to develop cooperative and harmonious labour-management relations.

The TF believed that the new technology cannot be utilized efficiently and effectively in an environment of social suspicion and unrest. We therefore recommended mandatory joint-technology committees in both unionized and non-unionized establishments of 50 or more employees under federal jurisdiction, a broadening of the definition of technological change, a requirement that an employer provide a minimum of 180 days notice of a proposed technological change and that disputes concerning the powers and functions of joint technology committees be submitted for resolution by binding arbitration. While Ontario at present does not have legislation in this area, federal legislation usually sets a precedent for other jurisdictions.

The TF examined the available evidence on the impact of ME technology on employment and rejected the view that ME will lead to massive unemployment for workers. While we recognized that ME can lead to job destruction in very specific segments of the labour market such as among women, new entrants to labour force, older workers, etc. the TF recommended education, training and retraining policies etc. as they key to facilitate labour market adjustment of these and other workers.

Footnotes

1. This paper is adapted from two earlier papers by the author entitled "Task force encourages diffusion of microelectronics in Canada" and "Micro-electronics Technology and Industrial Relations" to be published in the Monthly Labour Review and Relations Industrielles respectively.

2. In the Hamilton area, Camco Ltd. uses robots which spraypaint the inside of dishwasher tubs on an assembly line. Similarly, robot welders man the assembly lines at Ford's Oakville plant, programmable controllers run General Motors St. Catharines factory and automated arc welder at Stelco's Welland pipe mill can read the seam and ensure the weld to within thousandths of a millimetre. Paul Mitchell, "High-tech: It's robot Welders and a lot more," Spectator, April 11, 1983.

3. Arthur J. Cordell, "Computers and Employment: Future Prospects," January 15, 1982.

4. Planning Now for an Information Society: Tomorrow is too late, Ottawa: Science Council of Canada, March 1982. Also see, The Electrnic Office in Canada, Ottawa, Dept. of Communications, May 1982.

5. In the Chips: Opportunities, People Partnerships, Report of the Labour Canada Task Force on Micro-Electronics and Employment, Ottawa, Canada, 1982.

6. The Task Force commissioned research on the Canada labour Code, employment concerns, health and safety concerns, triggering technologies, and case studies of several industries under federal jurisdiction such as banking, transportation, Canada Post, and Communications.

7. The Task Force benefitted a great deal by public input in the six cities in which it held hearings - Toronto, Montreal, Halifax, Vancouver, Edmonton and Ottawa in that order. The T.F. also had numerous excellent oral and written presentations from important trade unions and employers, women's organizations, federal government departments and agencies, and concerned citizens. We also toured the Silicon Valley in California and Ottawa as well as met with and toured the facilities of several individual employers in micro-chip business.

8. The T.F. was told that Canadian ownership of the high technology industry is important since it affects autonomy of decision-making which in turn affects the quality of head office jobs and research and development representing the capacity of a company to regenerate itself.

9. John Cruickshank, "Shortage of skilled workers predicted," Globe and Mail, July 22, 1983.

10. Mark Hallman, "High-tech could 'sap' Hamilton," Spectator, April 26, 1983.

11. Paul Mitchell, "Don't rule out those 'mature' industries," Spectator, April 13, 1983.

12. In the Chips, op.cit.

13. W. Donald Wood and Pradeep Kumar, The Current Industrial Relations Scene in Canada, Kingston: Queen's University, July 1983. Also see Ronald Anderson, "Better labour-management ties may be legacy of recession", Globe & Mail, July 26, 1983.

14. A recent decision by the Canada Labour Relations Board, a study commissioned by the task force, and oral and written presentations by trade unions and other groups pointed out that the current technological change provisions of the Canada Labour Code (1) contain numerous examples of ambiguous language, (2) do not cover all types of changes that may result from an introduction of technology, (3) have too many "opting out" provisions relieving an employer of the statutory obligation to give notice or to recommence bargaining, and (4) allow management to provide inadequate information about its plans to introduce new technology.

15. Statistics show that the majority of agreements in the federal jurisdiction contain neither procedural nor substantive provisions on technological change. For instance, 72 percent of the agreements make no provision for prior notice of a technological change. A much higher percentage have no substantive provisions for adjustment to change such as training, retraining, relocation allowances, labor-management committees, and so forth. A part of the reason for this lack of provisions may be that Canadian unions, for the most part, have not given high priority to microelectronics technology. This may be due to resistance by management to discuss such issues, and the reactive approach taken by unions in bargaining which has prevented them from dealing with the matter until it creates a crisis in the work force and affects their members.

16. For instance, Sweden's Co-Determination At Work Act (1977), the Norwegian Work Environment Act (1977), and the agreement in Denmark on new technology (covering the period March 1981-July 1984) signed by Denmark's Central union and employer organizations spell out union-management rights and obligations. Under the "right to information" the Swedish Act gives the local trade unions the right to information about their company's production, finances, investment plans and personnel policies and this information must be kept up-to-date by the employer. In addition, pertinent union representatives may request to see and to audit relevant company books and accounts. Under the complementary "requirement to negotiate" under the Act, the employer must negotiate with the unions before important changes in production or administration are decided, and also on all matters which substantially affect working conditions or terms of employment.

    The Norwegian Act treats technology, working conditions and the work environment as a synergistic issue, and requires a legal synthesis of "management prerogatives" and employees "proprietary interests" in rights over the jobs. Under the Act, a working environment committee is mandatory in all undertakings which normally employ at least 50 workers. Employers who make changes of material significance for the working environment must consult beforehand this committee and provide sufficient time and "proper involvement", joint decision-making, and training for meeting the requirements of technological changes.

    The Danish agreement covers the introduction of, and any significant alterations to, production technology, including data-based technology and systems. It provides for specially created "new technology committees" and obliges employers to inform these committees in a way that is clear and easy to understand in advance of any technological plans or changes and to discuss their likely consequences for workers in the undertaking.

For references, see the March, April, August and October 1981 issues of the *European Industrial Relations Review*; the forthcoming issue (1983) of the *Bulletin of Comparative Labour*, and the report by S. Muthuchidambaram for the T.F. entitled "Micro-electronics Technology: An Industrial Relations Perspective," (unpublished).

17. Thomas Walkom, "Technology will cost up to 2 million jobs, report says," *Globe and Mail*, May 4, 1983, pp. 1-2.

18. *ibid*.

19. Charlotte Montgomery, "Technology job-loss fears mounting, Axworthy says," *Globe and Mail*, May 13, 1983, pp. 1-2. Also see, "CNR workers fear computers taking jobs." *The Windsor Star*, May 13, 1983. Peter Howell, "Inco robot could cost jobs," *Toronto Sun*, May 17, 1983, p. 16.

20. *In the Chips, op.cit*.

21. *Ibid*.

22. Moreover, in the short run, some measure of employment loss and disruption in the labour market is bound to occur. In the meantime, deskilling is occurring because more intelligence is being built into all types of machines. This has created fears of creating unrewarding, unskilled jobs resulting in a two-class, have and have not society of the prosperous, information rich and the poverty-stricken information poor. For example, a U.S. Department of Labor study shows that the people who will find the most job opportunities are fast-food workers, janitors and sales clerks while half of industrial and clerical jobs will be redundant in the next decade. There are also predictions that craft workers such as tool and die workers will be replaced by robots and the corporate structure will change from a "pyramid" form to an "hourglass" form as middle management workers are replaced by automated machines, Robert Cox, "High-tech elite: As information becomes wealth, new have-nots face menial jobs," *Globe and Mail*, August 1, 1983, and "High-Tech job scene: Pure gold or dross?" Globe and Mail, August 2, 1983. Also see Val Sears, "Pain before prosperity in computer Utopia," *Toronto Star*, August 1, 1983.

23. *In the Chips, op.cit*.

SESSION IIc

TRAINING TOMORROW'S WORKERS:

EDUCATIONAL OPPORTUNITIES

FOR YOUTH

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In the Western Lake Ontario region a rich and diverse set of educational opportunities are presented by five school boards, two colleges, a university, and private institutions. The educational institutions are supported through links with industry and business which have expression in cooperative education programmes, representation of industry and business on advisory committees, the establishment in 1981 of the Career Resource Centre in the main Hamilton Library, collaborative research activities, and in the establishment in 1979 of the Hamilton-Wentworth Industry-Education Council, the only such council in Canada, the objectives of which are:

*To stimulate and to support career education
*To focus community and school resources on career education needs
*To help students make better informed career decisions
*To coordinate career education within the region
*To facilitate the transition of youth from school to work
*To increase school/community understanding, cooperation, and collaboration.[1]

To achieve these objectives the Council has organized the development of a Career Resource Directory, career information seminars, community resources workshops, a student marketing conference, and student career awareness seminars.

This paper presents an inventory of the educational opportunities for youth in the Western Lake Ontario Region, primarily in Hamilton-Wentworth, and explores some of the policy issues related to educational institutions and curricula, in four sections:

1. elementary and secondary education offered by school boards;
2. Colleges of Applied Arts and Technology;
3. Universities; and
4. private sector education.

Information and opinions were collected by interview and letters from educators in this region, and from handbooks, calendars, reports and other documents.

ELEMENTARY AND SECONDARY EDUCATION

Elementary and secondary education are offered under the provisions of the Education Act through the Board of Education for the City of Hamilton, the Wentworth County Board of Education, the Halton Board of Education, the Halton Separate School Board, and the Hamilton-Wentworth Roman Catholic Separate School Board, which runs secondary education cooperatively with the Board of Governors for the Catholic High Schools. Elementary education includes Early Childhood Education through Grade 8, and secondary education Grades 9 through 13. Grades 7 through 10 are also known as the Intermediate Division. The five Boards have a combined budget of approximately $440 million, and a total enrolment of over 139,000.[2] For elementary and secondary education different per pupil grants from the Ministry of Education apply; Separate School Boards, however, receive funding for students in Grades 9 and 10 at the elementary level and no provincial funding for the senior years.

The goals of education established by the Province of Ontario include:

> "...helping each student develop: ...
>
> Skills and attitudes that will lead to satisfaction and productivity in the world of work.[3]

The goals, aims, and learning opportunities for Grades K to 6 of the elementary schools are set out in circular P1J1, The Formative Years.[4] The organization of grades among schools varies according to local needs and school populations within the catchment areas. The major decreases in elementary school enrolments have now past, although different rates of change will occur throughout the region, causing pressure on some schools and underenrolment elsewhere.

Secondary education is in a state of flux. After receiving the report of the Jackson Commission on Declining Enrolments, the Minister of Education established the Secondary Education Review Project which published a discussion paper[5] a year later in May 1981 and a final report[6] in October 1981. The Minister of Education's response The Renewal of Secondary Education (ROSE)[7], and the circular Ontario Schools: Intermediate and Senior Divisions (Grades 7 - 12/OACS)[8] set out the planned changes. Opinions differ on how well students and various sectors of society will be served by the changes, but the intentions are noteworthy:

> In recent decades, two additional tasks have grown in importance. Preparation of young people to enter the world of work with the attitudes and skills that would make them productive and successful is an essential task which must complement the traditional functions of secondary education. As well, as a result of a variety of social changes, the need for schools to work along with parents to nurture students through the adolescent years to the beginning of maturity has expanded dramatically. These two recent tasks of the school must be reflected in the curriculum priorities of each school.[9]

The proposed changes and the opportunities for secondary education under both the current and proposed systems are discussed below.

Currently, there are four areas of study: Communications, Social and Environmental Studies, Pure and Applied Sciences, and Arts. Courses may be offered at five levels of difficulty (Advanced, General, Basic, Modified, and Unphased), and each course is assigned a credit value (one credit represents a minimum of 110 hours of scheduled time).

Two diplomas are offered: the Secondary School Graduation Diploma (SSGD) and the Secondary School Honour Graduation Diploma (SSHGD). The minimum requirements for the SSGD[10] are 3 credits from each of the four areas of study and an additional 15 credits for a total of 27 credits, of which nine are required: 4 English, 2 Mathematics, 1 Science, 1 Canadian History, and 1 Canadian Geography. The SSHGD requires six Grade 13 credits.

There are 21 secondary schools operated by the Hamilton Board (14 composite and 7 vocational), 17 by the Halton Board of Education, 2 by the Halton Separate School Board, 7 by the Wentworth County Board, and 7 by the Roman Catholic Separate School Board and the Board of Governors of the Catholic High Schools. All the Hamilton Roman Catholic, 15 of 17 Halton, and two of seven Wentworth schools operate on a semester system. The pattern is mixed for the Hamilton Board.[11]

Since postsecondary study is discussed later, this section deals mainly with those parts of the secondary school curriculum most directly related to employment. Each board offers technical courses such as drafting, auto mechanics, electricity, and industrial arts, but differences exist. In 1982 in the Hamilton Board there were 10,002 course registrations. Some subjects are available in virtually every pre-Grade 13 composite school, and others selectively by school. To encourage wise programme planning and to provide appropriate recognition, the Board gives a Certificate of Endorsement and a transcript endorsement in technical subjects for students whose packaging of senior level subjects meet the criteria of a technical "special".[12] The seven vocational secondary schools with an enrolment in 1982 of 2,104 offer courses which include auto body, auto service, quantity foods, welding, cosmetology, hospital services, sewing, and marketing.

The offerings of the Roman Catholic Separate School Board are more limited; one major constraint is that the provincial funding for Grades 9 and 10 is at the elementary level and no funding is provided thereafter. The Wentworth Board of Education has a range of technical courses and an enrolment approaching 5,000. While Ancaster High and Vocational School offers a full range of courses, there is some specialization in the remaining schools.

Enrolments in business education exceed those in technical education. Courses offered include Accounting, Consumer Education and Law, Marketing, Typing, Shorthand, Office Communications, and Computer Concepts and Fundamentals. Some interviewees noted a need for revision and updating of curriculum guidelines; courses in computer applications, information processing, and word-processing are being developed and introduced.

Cooperative education grew throughout Ontario from 5,100 students in 1981 to 9,700 a year later.[13] At least one third of the credits for a coop course are awarded for the in-school component; a longer period on the job is required for co-op credits than for in-school credits.[14] Most cooperative placements complement business, technical, and vocational courses in school. Advantages cited by interviewees included: opportunities for career exploration, use of modern equipment, and development of social skills and attitudes. More rapid expansion is constrained by the provision of supervision by the Boards. Fear was expressed that the new curriculum requirements would limit the opportunities for gaining co-op credits.

In addition to their full-time offerings the Boards offer Continuing Education. Credit courses may be taken during the day, evening, or summer[15], and appeal particularly to adults seeking to re-enter the work force or those seeking entry to postsecondary institutions. Credit courses may also be taken through the Correspondence Branch of the Ministry of Education.[16] The Boards with provincial funding offer heritage language programmes, driver education, adult basic literacy courses, English as a second language, and citizenship and language instruction for landed immigrants. General interest courses are run on a user-pay basis.[17]

Four major challenges face elementary and secondary educators:

1. revision of the secondary school curriculum;
2. equipment renewal and replacement;
3. reduced financial resources; and
4. shifting and declining enrolments.

With respect to the first of these, the Minister of Education in her response to the Secondary Education Review Project noted:

> Among both the professional respondents and the public, a desire for clearer and more demanding standards of achievement and discipline was consistently expressed. While the achievement of such standards must lie with the students, parents and educators in each school, it is clear that the Ministry is expected to provide the direction, the curriculum requirements and reasonable mechanisms for supervision and accountability to ensure that the learning opportunities for students throughout the province are equitable, consistent and of the best possible standard.[18]

The major changes proposed in secondary education are:

1. replacement of the two graduation diplomas by a single diploma, the Ontario Secondary School Diploma (OSSD) which, would be completed by most in four years and an increase from 9 to 16 compulsory credits;[19]
2. conversion of Grade 13 courses to Ontario Academic Courses which may count to the new OSSD or be taken subsequently;

3. rewriting curriculum guidelines for Grades 7 onwards and the inclusion of consistent elements across the Province;
4. courses offered at three levels of difficulty (General, Basic, and Advanced) rather than five levels;
5. availability of a certificate requiring 14 credits (6 compulsory) for students unable to complete the diploma,[20] and
6. further development of the Ontario Assessment Instrument Pool particularly for the Ontario Academic Courses.

The changes which have generated most debate and concern are the increases from 27 to 30 units for the diploma and from 9 to 16 compulsory credits. Some have argued that more students will leave school earlier, and that students will have difficulty finding elective courses appropriate to their aptitudes, interests, and needs,[21] particularly in Grades 9 and 10 for those wishing to develop business or technological programmes since many of the compulsory and the prerequisite elective courses must be taken in these grades. Conversely, some argue that there is room in the curriculum for basic subjects which are essential for developing the knowledge and understanding to function in the Canadian workplace and society. Thus, it was argued, for example, that competence in English is more enduring and relevant than the ability to operate communications devices which will be changed by technological advances. Furthermore, it might be noted that courses may be taken at the appropriate level of difficulty. The issue, therefore, is how the curriculum may best prepare students for their roles in Canadian society.

Much of the current equipment was purchased through capital funds when buildings were built or through the provisions of the federal

Technical and Vocational Training Act (1960).[22] While interviewees recognized that secondary schools cannot expect to have the most modern equipment, technological changes and passage of time have made existing machines obsolete or run-down. A number of solutions are being explored and implemented such as cooperative education, the possibility of developing technology centres to which students would travel for specialized courses such as electronics, provision within budgets for equipment replacement, and special grants from the Ministry of Education for computer equipment.[23] A related problem is teachers keeping abreast of new developments; courses and seminars are offered to assist teachers, and many are making private efforts, but concern was expressed that the reward structure encourages taking academic courses which may not be the most relevant.

The financial pressures facing the Boards are similar to those which affect other parts of the public sector and society, but are exacerbated by the declining enrolments when provincial grants are made on a per student basis. Most of the decline in elementary school enrolment has occurred, and the trough of the wave is now moving into and through the secondary system. This is reflected in school closures and programme re-adjustments. While these changes are difficult, the problem is compounded by some areas, such as east Hamilton mountain, continuing to grow while other areas have surplus classroom places.

COLLEGES OF APPLIED ARTS AND TECHNOLOGY

The Colleges of Applied Arts and Technology were established in 1965 by Bill 153, An Act to Amend the Department of Education Act.

This initiative followed far-reaching re-organization of secondary schools, and was "another step towards fulfillment of our efforts to expand and redesign our system of schools and universities to meet more adequately the changing demands of challenging times".[24] The Minister of Education went on to state:

> In this new age of technological change and invention, also, it is essential to the continued growth and expansion of the economy of our Province, and of our nation, that adequate facilities be made generally available for the education and training of craftsmen, technicians, and technologists.

The colleges were charged with three primary responsibilities: provision of courses of study beyond the secondary level, meeting the needs of the increased number of secondary school graduates who would not proceed to university, and meeting the educational needs of adults and youth who were no longer in school.

The Western Lake Ontario region contains two colleges: Sheridan College serving Halton, and Mohawk College serving Hamilton-Wentworth, Brant, and Haldimand. Mohawk College, which is used to describe the educational opportunities provided by colleges, evolved in 1967 from the Hamilton Institute of Technology which in 1957 succeeded the Provincial Institute of Textiles (established 1947). The college has over 50,000 registrations annually on twenty campuses.

Over 60 full-time postsecondary programmes, primarily two and three-year programmes, are offered through three Faculties: Applied Arts and Business, Applied Science and Technology, and Health Sciences.[25] Each programme has an advisory committee, and some are offered on a cooperative basis. In 1982-83 full-time postsecondary enrolment was 6,365 and full-time apprenticeship enrolment, 1,340.[26] Most of these programmes are offered at the Fennell campus; Health

Sciences programmes are given mainly at Chedoke-McMaster Hospital and some in Brantford. Between 50 and 60 per cent of the students are drawn from Hamilton-Wentworth, and almost 75 per cent of college students from this region attend Mohawk College.[27] Of those entering full-time postsecondary study 53 per cent completed Grade 12, 28 per cent have taken some Grade 13 work, 11 per cent attended college, five per cent university, and three per cent other.[28]

Adult Training was provided to 4,600 students in 1982-83 and consisted of upgrading and skill-training. Upgrading courses are generally equivalent to secondary education. Many of the skill-training programmes[29] lead to a certificate, and are generally of less than a year's duration; Canada Manpower purchases places from the College and provides living allowances to students. Students in the three year Industrial Craftsmen Internship programmes[30] are generally sponsored by Canada Manpower or industry.

Seven apprenticeship programmes[31] are offered; the college teaches three eight-week sessions (basic, intermediate, and advanced) during which the student is paid by the provincial government. The student obtains a college certificate, and subsequently a journeyman's certificate. Some students are part of the Linkage programme.

The College administers the Ontario Career Action Programme, and provides training for participants who are 16 to 24 and unemployed.

There are almost 43,000 part-time registrations annually in the Faculty of Continuing Education in postsecondary programmes, or in courses in creative arts, health sciences, women's studies, volunteer service, special courses offered in cooperation with other organizations and employers, management development, English as a second language, and special interest courses.

The colleges are facing increasing demand for admission not only from their traditional clients, 18-year old Grade 12 graduates, but also from Grade 13 graduates, older persons, and more females. Such trends may be accentuated by high unemployment, but, if continued, may offset the expected decrease of the 18-year old cohorts. A challenge to the colleges is to adapt programmes and curricula to changing technology and employment needs; new initiatives include the Industrial Craftsmen Internship programme to meet the need for skilled trademen and the establishment of a computer-aided design lab. The financial pressures are similar to those elsewhere, and limit the places available. Equipment and computer purchases have been possible through the federal Skills Growth Fund and the provincial BILD programme.

UNIVERSITIES

Whereas most elementary, secondary, and college students attend a local institution, 40 per cent of the Hamilton-Wentworth students attending universities as undergraduates attend universities elsewhere in the Province.[32] At the graduate level there is even greater movement. In discussing opportunities for university education, therefore, one must look beyond the local university.

The largest group of university students, 159,000 in the fifteen universities of Ontario in 1982-83, are full-time undergraduates registered in the core arts and science programmes, and in professional and quasi-professional programmes like engineering, pharmacy, nursing, business, and physical education; all these programmes may be entered from Grade 13. Some professional programmes (like Medicine, Dentistry, and Law) require two or three years of undergraduate work, and are offered by a restricted number of universities. Education programmes for the B.Ed. degree are normally entered after a bachelor's degree.

Continuing education may be either credit or non-credit. Credit programmes lead to a degree and enrolment has been increasing in recent years at a rate of five per cent annually to 86,670 in the Fall of 1982. Such courses may be offered on a university campus, at geographically-dispersed locations,[33] through correspondence, or by television. Non-credit offerings include courses leading to certificate and professional designations, short seminars, general interest courses, and summer programmes. Continuing education, both credit and non-credit, may be taken in winter, spring, summer and intersessions; at day or night; or during the week or at weekends.

In Ontario almost 17,000 full-time and 12,000 part-time students register in graduate programmes. Some masters programmes may be considered professional and attract large numbers of both full-time and part-time students (e.g. business and education).[34] All graduate programmes must be successfully appraised by external reviewers, and doctoral programmes are limited to selected universities.

McMaster University as a medium-sized, comprehensive university represents the areas described above. Undergraduate instruction, part-time and full-time, is offered through the Faculties of Business, Engineering, Health Sciences, Humanities, Science, and Social Sciences. Part-time, non-credit courses are offered by the School of Adult Education. McMaster University's graduate programmes have received favourable external appraisals and a distinctive feature is the high proportion of students in programmes leading to the Ph.D. degree.

A major and distinguishing function of a university is research and scholarship. McMaster University attracted almost $33 million of research grants and contracts in 1982-83,[35] the highest for a Canadian university of its size.

The major issues faced by universities are reduced resources resulting in enrolment restrictions, increased class sizes, and reduced equipment and library purchases;[36] enrolment shifts among disciplines which are difficult to respond to;[37] and the anticipated onset of declining enrolments.[38] The enrolment shifts of the past decade have been to programmes like Business and Engineering perceived as most directly related to employment; full employment in these areas has created competition for faculty, reduced the numbers entering graduate programmes, and resulted in restrictions in undergraduate enrolment. Given the universities' unique role in preparing the highly qualified manpower needed to attain the federal government's goal of raising Research and Development expenditures to 1.5 per cent of GNP by 1985, these developments may well be the primary long-term issue related to university education and the economic future of Canada and this region.

PRIVATE SECTOR EDUCATION

Alongside the publicly-financed sectors described above exist private institutions. At the elementary and secondary levels, operating within Ministry of Education guidelines, exist Calvin Christian School (elementary, 315 students), Hillfield-Strathallan College (elementary and secondary, 840 students), Southern Ontario College (elementary and secondary, 840 students), Southern Ontario

College (Grades 11-13, 73 students), and Columbia Secondary School of Canada (Grades 11-13, 310 students). Redeemer College, opened in September 1982, offers study comparable to Grade 13, and a second year designed to equate with first-year university work. The Theological College of the Christian Reformed Churches prepares students (15 in 1983) for the Master of Divinity degree.

Special purpose institutions like the Hamilton Art School and the Dundas Valley School of Art offer mainly part-time courses; the Dundas School has approximately 35 full-time students who may be granted credit from the Ontario College of Art and York University towards further qualifications.[39] Operating under the Private Vocational Schools' Act 1974 and supervision of the Ministry of Education are institutions like Career Canada, Park Business College, Bruno's Schools of Hair Design, Canadian Travel School, Johnson Business Academy, and Sylvia Reiser Modelling and Self-Development. Government loans and bursaries may be granted to some students.

CONCLUDING REMARKS

Common themes run through the issues facing the various sectors of education. In curriculum, the perceived needs of the workplace were a motivating force in the revision of secondary education, in the adaption of and demand for college programmes, and in the increased demand for some university programmes. While elementary and secondary enrolments have experienced decline and shifts among the catchment areas of schools, the future for colleges and universities is unclear, since participation rates vary more than at the earlier levels; shifts among programmes have already and will continue to occur. All sectors believe they are under financial pressure, and that quality will suffer. Special concerns about equipment have been noted in reports and interviews conducted by the author; however, it appears that a response is being made as computer and equipment purchases are enabled through new government initiatives.

The most hopeful sign for meeting the educational needs of youth in this region, one interviewee noted, was the range of facilities and cooperation that exist among business, industry, educational institutions, local government, and other institutions like the Industry-Education Council and the Hamilton Industrial Training Centre.

REFERENCES

1. A summary of the development and activities of the Council appears in Robert Philip. A Canadian Industry-Education Council Model. Journal of Industry-Education Cooperation. III (1), 1983. pp 27-32.

2. The data were obtained from the school boards.

3. Ministry of Education. Issues and Directions. June 1980. pp 4-7. The full text presents clarification of each of the thirteen goals.

4. Ministry of Education. Circular P1J1, The Formative Years.

5. Ministry of Education. Secondary Education Review Project: A Discussion Paper. May 1981.

6. Ministry of Education. Report of the Secondary Education Review Project. October 1981.

7. Ministry of Education. The Renewal of Secondary Education in Ontario. November 1982.

8. Ministry of Education. Ontario Schools: Intermediate and Senior Divisions (Grades 7-12/OACs). At the time of writing a first draft dated February 1983 and a second draft have been released. It is anticipated that a final version will appear in the fall of 1983.

9. Ibid. P4.

10. Ministry of Education. HSI, 1979-81

11. Ministry of Education. Scheduling Patterns in Secondary Schools, 1982. April, 1983.

12. Year 3: 3 credits - Mathematics, Science, English
    3 credits - Technical subjects (including two from an area of specialization)
    Year 4: 3 credits - Mathematics, Science, English
    3 credits - Technical subjects (including two from an area of specialization)

13. The Board of Education for the City of Hamilton. Coop Update. May 1983. Mimeographed.

14. The Wentworth County Board of Education, for example, stipulates 180 hours, except under special circumstances.

15. In the case of summer courses the standard time of instruction is reduced to 60 hours for repeaters from the normal minimum of 120 hours.

16. Offerings are detailed in the annual publication of the Ministry of Education: Correspondence Education.

17. Provincial government grants used to be given but were withdrawn effective September 1982 as announced in the memorandum of April 1, 1982 to Chairmen of School Boards from the Minister of Education regarding 1982 General Legislative Grants.

18. The Renewal of Secondary Education. p 7.

19. The 16 credits are English 5 (including 2 senior), Mathematics 2, Science 2, French 1, Geography 1, History 1, Social Sciences (senior) 1, Physical and Health Education 1, Arts 1, Business or Technological Studies 1.

20. The 6 credits are English 2, Mathematics 1, Science 1, Canadian History or Geography 1, Physical and Health Education 1.

21. These views have been reported in the news media and were expressed to the author in interviews.

22. Ontario entered into the Federal-Provincial Technical and Vocational Training Agreement on June 26, 1961. During the six years before the agreement expired on March 31, 1967 $560 million in vocational cash grants had been approved, and 400 secondary school building programmes had provided 235,000 vocational pupil places. (Source: Report of Minister of Education 1967, p 9).

23. Further details regarding computer grants, technology, software and use in education appear in Ministry of Education Memoranda 47 (23 Feb, 1982), 67, 68, 69, 70, 72, 73 (all dated 24 March, 1983).

24. Statement by the Honourable William G. Davis, Minister of Education, 3rd Session of the 27th Legislature of Ontario, May 21, 1965.

25. The 1982-84 Mohawk College Calendar lists in the Faculty of Applied Arts and Business, 4 three-year and 16 two-year diplomas; Faculty of Applied Science and Technology, 13 three-year and 10 two-year diplomas, 7 apprenticeship programmes, 5 three-year programmes involving internship and leading to journeyman status, and 2 one-year certificate programmes; Faculty of Health Sciences, 5 three-year and 1 two-year diplomas.

26. Data supplied by the Registrar of Mohawk College.

27. Data supplied by the Ministry of Colleges and Universities.

28. Data supplied by the Registrar of Mohawk College.

29. Programmes include welding, commercial arts, travel counselling.

30. Programmes are Industrial Electrician, Industrial Machinist, Industrial Mechanic, Fitter-Welder, and Tool and Die Craftsmen.

31. These include Carpenter, Plumber, Refrigeration and Air Conditioning.

32. The data, obtained from the Ministry of Colleges and Universities, show no difference between part-time and full-time students.

33. McMaster University offers courses in Brantford, Burlington, Hagersville, downtown and east Hamilton, Oakville, and Stoney Creek.

34. In 1980-81, of 9,682 full-time masters students 550 were in education and 1,737 in business; of 9,003 part-time 2,981 and 1,919 were in education and business respectively. (Source: Statistics Canada. Universities: Enrolment and Degrees 1980. p 24).

35. Data obtained from Office of Research Services, McMaster University.

36. See: 1. Ministry of Colleges and Universities. The Report of the Committee on the Future Role of Universities in Ontario. August 1981. 2. Ontario Council on University Affairs. A Financial Analysis of the Ontario University System - 1982. December 1982. These two documents provide an analysis of funding and expenditures from 1970-71 onwards.

37. Between 1973 and 1981 the proportion of Year I students in Arts and Science dropped from 68.2% to 60.3%, while Business enrolment increased from 6.1% to 13.9% and Engineering from 7.6% to 9.8%. The greater increase in Engineering applications from 8.1% to 14.6% of the total in the same period is indicative of the limitations on enrolment. (Source: Council of Ontario Universities. Application Statistics. Published annually.)

38. Most undergraduates enter at age 19, and the following decreases in the number of nineteen-year olds have been projected: 1984 3.1%, 1985 5.7%, 1986 5.1%, 1987 5.7%. (Source: Statistics Canada. Population Projections for Canada and the Provinces. 1979.)

39. Letter from Director of Dundas Valley School of Art.

SESSION IId

The Training Challenge

A background paper prepared for
the Western Lake Ontario Economic
Futures Conference to be held at
McMaster University, October 6 & 7, 1983

by

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Summer, 1983

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During the 1970s a great deal of attention was focused on the system of training in Canada. Enrollments in primary and secondary schools began to decline, both unemployment and inflation were high, and taxpayers began to demand more value for their educational dollar. The blind faith that education -- any education -- would fuel rapid economic growth had been prevalent during the 1960s, but it turned to skepticism in the 1970s. The loudest public voices insisted that education be made more effective and career relevant. In the mid to late 1970s Canadian industry began to experience shortages of workers with industrial trade skill qualifications. Because of high unemployment government authorities made it more difficult for people to immigrate to Canada. Moreover, European standards of living improved considerably relative to Canadian standards and European craftsmen had less incentive to move to Canada.

These concerns led to a good deal of research which expanded considerably knowledge about the system of training in Canada. Major surveys were carried out by a federal government Commission on Educational Leave and Productivity and by the Economic Council of Canada. Other investigators carried out case studies and opinion surveys. In Ontario, the "training crisis" gave birth to the Ontario Manpower Commission in 1979 which was to report directly to the premier on the labour market problems of the province. The Commission also did a good deal of research on training.

A number of key conclusions emerged from this burst of inquiry. It became clear that a large number of Canadian young people leave the formal education system in command of few marketable skills. Until recently the secondary education system had considered vocational training to be a small part of its mandate. Moreover, vocational programs were often considered to be less worthy than academic programs and therefore the most able students generally shunned them. Research indicated that less than 5% of secondary school graduates completed coordinated programs of skill development on an annual basis. The Canadian situation was often contrasted to that in West Germany where approximately 50% of German secondary school students take coordinated programs of vocational training.

Research also found that the training capacity of industry was deficient. Most establishments had no formal training programs and a large percent of those who reported formal training, in fact did little more than provide safety instruction and brief orientation sessions for new employees. A very small minority of firms provided training schemes which developed low skilled employees into highly skilled craftsmen and professionals. For most people who ended their formal education at the secondary level, acquiring vocational skills was a catch as catch can process.

Canadian industry depended heavily on colleges and universities for technicians, technologists, engineers and professionals of various sorts as well as for individuals in posession of diverse administrative and business skills. During the era when the baby boom generation was passing through the school system university graduates with liberal arts credentials could, and often did, go into teaching. Now that the baby boomers have grown up liberal arts graduates are an increasing labour market problem. They have a much more difficult time getting jobs than do those who take career oriented programs.

To a large extent craftsmen such as tool and die makers and machinists historically were recruited from Europe. A study carried out in the central Ontario area in the late 1970s found that about 8 of 10 industrial craftsmen were European trained. There were, of course, some Ontario companies which did a considerable amount of apprentice training. Stelco and Dofasco in Hamilton were notable examples. In 1981 those two companies had over 1,500 apprentices, a substantial percent of all industrial apprentices in the province. The shortage of industrial skilled craftsmen and the failure of industry generally to provide training programs became a prime focus of the 1970's training debate.

Government training policy - and especially federal government policy - came under intense scrutiny and was found wanting in several respects. Since the 1960s the federal government has been highly involved in training. Through the Canada Manpower Training Program (CMTP) federal funds were channeled to community colleges largely to pay for the training of unemployed people. The Canada Manpower Industrial Training Program provided grants to employers who would provide on-the-job training. In the debate of the 1970s several criticisms were aimed at these programs.

About 9 of 10 federal training dollars were spent on institutional (i.e., classroom) as opposed to industrial training. Many observers felt that training would be more efficient if the ratio was reversed or at least made more equal. Another fequent ciritcism was that most federal money was spent on short term training programs. National training legislation forbade support to programs of more than one year duration.

An obvious, although often downplayed, aspect of federal training policy was the objective of removing people from the ranks of the unemployed by placing them in training programs. During the 1970s pressure to reduce unemployment resulted in the support of many training programs which were not well geared to industrial skill needs. Many people went from unemployment to training and back to unemployment.

In addition to the general issues noted above, the particular problems of special groups -- most notably women, the undereducated, the handicapped and trade unionists -- were given special attention. It is not possible to discuss all of these concerns in the space of this short paper. However, it is worthwhile to note a few of the critical issues regarding women. The labour market problems of women are likely to become more, rather than less, severe in the years ahead.

During the 1970s there was a very large increase in the percent of adult women participating in the labour force. Most of the new working women found themselves in so-called women's jobs which, on average, were lower paying than traditional men's jobs. Training was often suggested as a means to enable women to qualify for more lucrative positions. In the 1980s and 1990s massive retraining will be necessary because of the expected impact of microchip technology on the clerical and secretarial jobs usually filled by women. Large numbers of these jobs will almost certainly disappear and there is no agreement among analysts where the new jobs will be or if a sufficient number of new jobs will be created. Indeed pessimists believe that an era of very high unemployment is about to dawn.

To overcome these problems the federal and provincial governments have undertaken several initiatives, sometimes in concert and sometimes separately. One reason skill shortages developed in the 1970s was because human resources planning was very underdeveloped in industry. To overcome this problem Ontario, with federal government financial support, encouraged the development of Industrial Training Advisory Committees at the community level. The Hamilton Committee (HITAC), with representation from education as well as labour and business, was the first in the province and acted as a model for other communities. It conducted surveys of training needs in the area and developed programs likely to be responsive to those needs.

Another voluntary community group of significance, the Hamilton-Wentworth Education-Industry Council, was founded in 1979. The Council has concentrated on providing secondary school students with information necessary to make informed career decisions. Many education and training activists in the area are involved with both organizations.

In the late 70s and early 80s the federal government began to sign human resources planning agreements with industrial associations. The typical agreement provided for the government to supply information and special assistance relevant to the needs of the association while, for its part, the association agreed to encourage planning and training among its members. The federal government also began to require companies who wanted to recruit abroad to do planning and to establish training programs. In 1982 the Canada Employment and Immigration Commission (CEIC) unveiled its new occupational projection system. For some time the Commission had been projecting occupational developments but the new system added the element of subjective, expert inputs from labour and management representatives actively involved in training. Presumably, the new element will make the system more accurate and will enable the labour market parties to plan and implement programs more effectively. Through computer terminals available across the country companies, unions and educational institutions will be able to acquire fairly detailed information on expected trends over the next three to 10 years.

The big question is whether or not the parties will effectively utilize the new data that are now available. Several recent investigations have indicated that human resources planning at the company level is still very underdeveloped and it is by no means certain that the policy initiatives to date will significantly change the status quo.

To encourage the expansion of apprenticeship training for the industrial skilled trades CEIC introduced Critical Trades Skills Training (CTST) in 1979. A list of occupations for which there were significant shortages was compiled and to encourage industry to initiate training for these skills rich incentives were provided. The one year training support limit was lifted and, for CTST, subsidies could be provided for up to three years. To date CTST apparently has had the intended effect of increasing industrial training.

Despite widespread layoffs caused by the deep recession the number of CTST trainees has continued to expand. In 1982-83 the Hamilton Employment Center will spend approximately one and one half million dollars to support the training of over 250 apprentices through the CTST program.

In the past, apprenticeship programs have been bedeviled by business cycles. During contraction periods apprentices often were laid off and looked for whatever work was available instead of continuing with their training. To ameliorate this problem CEIC and the provincial government introduced new initiatives to provide apprentices in long term shortage occupations with special incentives to continue their training while laid off. For example, one program funded by the Employment and Immigration Commission permits apprentices to continue their training through a simulated work scheme administered by Mohawk College. A similar scheme was developed jointly by Steelworkers Local 1005, Stelco and Sheridan College with provincial government financed support. Another Stelco initiated scheme enabled laid off apprentices to take courses at Mohawk in the theoretical aspects of their trades. Funding support came from the federal government while Stelco provided their own instructors. Such efforts have helped to stabilize the apprenticeship system but undoubtedly many aspiring craftsmen in the area have had to alter their career plans because of the economic downturn. At the height of the recession more than 90% of the apprentices at Stelco and 75% at Dofasco were laid off and those rates are indicative of the general experience.

Both the Ontario and federal governments have recently supported innovative training programs. One of the earliest and most creative approaches in the province was the Hamilton Industrial Training Center. Sponsored by HITAC, initiated with federal and provincial funds as well as the contribution of equipment by local companies, the Center in Stoney Creek has drawn a good deal of attention. Instead of signing on as apprentices at a local company, qualified applicants who are accepted in one notable HITC program become students of Mohawk College. They receive instruction at the Center and acquire practical experience through periods of work in industrial companies. Instead of requiring study for a specified period of time, many of the HITC programs allow students to progress at their own pace. As a result training times are reduced and skill shortages are addressed more quickly. The center hopes to introduce a craft specialist program next year under which skilled craftsmen would be able to specialize in advanced aspects of their trade. With rapidly developing technology such programs are likely to be increasingly necessary in the years to come. One indication of the success of the center is the extent to which it is utilized. For the past few years the facility usually has been in operation for 18 hours a day or more. During a few periods it has operated 24 hours a day

In 1982 the federal government unveiled its New National Training Program. This program consolidated many of the changes which already had been made to the older training programs and added a few more elements. More emphasis, and a larger percent of training funds, was placed on industrial as opposed to institutional training. At the community college level new stress was placed on training to meet real national and regional skill shortages rather than training as a substitute for unemployment. To assist the colleges to upgrade their facilities to train effectively in areas of rapidly changing technology a Skills Growth Fund was established. In 1982-83 several million dollars were distributed from the fund to colleges in the province. As a result it is expected that both the quality and quantity of institutional training will improve.

The problem of women in low pay job ghettoes was given a good deal of attention by the Employment and Immigration Commission. A major high profile effort to address this problem was the provision of enriched subsidies to employers who would train women for non-traditional jobs. In the Hamilton steel industry women began to work again in the mills for the first time since World War II.

Changes also took place at the secondary school and university level. In the high schools more emphasis was placed on career counselling and new techniques were tried to help students plan careers more effectively. Cooperative education and pre-apprenticeship programs expanded. One widely heralded provincial program, Linkage, ran into unexpected problems in the area. Introduced in 1979, Linkage provided secondary school students with required apprenticeship courses before entering the work world. However, students became disillusioned when some major employers refused to give Linkage graduates credit for the courses. Not being involved in the design and content of the courses, the employers were skeptical as to their quality. At present the Education-Industry Council is trying to find a solution to the quandary.

Universities also began to debate their role in the training system. On the one side of the issue were those who argued that universities, as institutions of higher learning, should not concern themselves with labour market training problems. At the other end of the spectrum were those who would sharply reduce expenditures on programs with little market relationship and significantly increase programs for which graduates were in demand such as engineering and business. Most universities steered a course between these extremes. At McMaster, for example, enrollments in engineering and business did expand but less vocationally oriented departments with strong academic credentials continued to be supported despite a growing dearth of students. Responding to the tenor of the times new initiatives were taken to make the university more accessible to adult students. For example, courses were scheduled so that students could attend classes at regular hours early in the morning, at lunch, or late in the afternoon.

Are the changes that have been made to date sufficient? Is the training system as it now stands adequate to meet the challenges of 1980's and 1990's? There are many (this writer included) who believe that the policy initiatives of the past decade, while certainly in the right direction, have not been sufficient to produce the type of system which will be needed in the years ahead. The preponderance of research suggests that training is most effective when it is the result of the combined efforts of educators and representatives of labour and industry working together in concert. Through HITAC and the Education-Industry Council Hamilton is better served in this regard than most Canadian communities. Nevertheless, only a small minority of Hamilton companies are involved in these organizations. Most employers limit their involvement in the training system to complaining about the inadequacies of public policy.

Federal government initiatives to date have two critical flaws. First, they presume that government has the ability efficiently to identify training needs and to develop quick, effective responses to those needs. There is no reason to believe that the presumption is accurate. For example, the Critical Trades Skills Program has produced a substantial increase in industrial trades skills training. However, it took several years to develop the program and to put it into operation. During those years skills shortages were a continual problem. Indeed it is ironic that CTST only hit full stride in 1982 when massive layoffs, caused by the deep recession, made moot the immediate need for skilled workers. Since the demand for skilled workers is predicted to reemerge strongly in 1985/86 the program may yet prove to be a real success. Nevertheless, the process which generated the program is a ponderous one. Surely there must be a better, more flexible scheme which will permit the primary parties to react quickly and effectively to issues as they occur. Centralized government action in an area like training which is dynamic, volatile, and in constant flux is not the final answer.

The second problem is that by accepting responsibility for developing a solution to the present quandary government fosters a dependence by the private sector on government action. Why should labour and management seek answers to common problems if they can depend on government to do it for them? In the long run the training system will achieve its potential only if labour and management develop programs to which they are both committed. But continual government intervention may have a deadening effect on the will of the parties to fashion their own solutions to perceived needs.

A report, recently released by the Ontario Manpower Commission noted that many large firms in the province do not train sufficiently for their own needs and that government initiatives to date have not enticed them to do so. They prefer to allow others to train and then, in the British terminology, they "poach" the skilled workers. The Manpower Commission report also stated that in the years ahead "anticipated shortages in the highly-skilled industrial trades are several times greater than the EST/CTST (i.e. Critical Trades Skills Training known in Ontario as Employer Sponsored Training) enrollment."

After strongly implying (without directly stating) that policies in place are not sufficient the Manpower Commission went on to discuss "three forms of governmental action other than wage subsidies that are most frequently proposed to stimulate industrial training."

1. A levy grant system under which employers pay into a fund and the proceeds are used to underwrite training.

2. A tax-credit system under which a tax would be applied to employers equal to a percent of payroll and training expenses could be set off against the tax.

3. Contract compliance under which government would place significant orders for goods and services only with employers who engaged in training.

This writer has argued for several years that the tax credit scheme is likely to be the most efficacious approach in the long run. It should have the following results:

1. The threat of being taxed would compel many employers to look more closely at training. There is now a substantial body of research which suggests that carefully designed training is usually a very good investment. Some of those trained leave their jobs taking the investment of the enterprise with them but, in most cases, those who stay are productive enough to pay back the investment both in them and in those that leave.

2. After carefully considering the benefits of training as well as the alternative of paying higher taxes many employers who didn't train in the past should introduce programs. Instead of being an activity engaged in by a few employers training in industry should become a commonplace aspect of the Canadian economy.

3. In the place of centralized decisions, taken in the crucible of crisis, training decisions would be decentralized and tailored to meet the needs of varying sectors of the economy. The system should be more flexible and therefore be better able to respond to problems as they arise.

4. With funds available directly from industry (instead of from government) educational institutions may be expected to develop and maintain programs considered by industry to be more appropriate and responsive to their needs. Moreover, industry is likely to take a keener interest in programs for which it is paying directly than in those negotiated by government and educators with industry as a bystander.

One result of a training tax credit system should be the significant expansion of training opportunities available to Canadians. The bottom line should be a Canadian economy more capable of effectively meeting the challenges of the 1980's and 1990's.

Training has been a significant public issue for the past decade. Many changes have been made to the system and, although they may not have gone far enough, there can be little doubt that they are changes for the better. There also can be little doubt that, with the rapid introduction of new manufacturing technology and office automation, training will continue to be a salient issue throughout the 1980's.

ECONOMIC FUTURES CONFERENCE
Western Lake Ontario Growth Corridor

McMaster University, 1280 Main St. W., Hamilton, Ontario L8S 4L8

BACKGROUND PAPERS

DISCUSSION THEME TRACK III

"THE PUBLIC SECTOR INTERFACE"

SESSION IIIa

THE KNOWLEDGE INDUSTRY AND INDUSTRIAL DEVELOPMENT

BY

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AUGUST, 1983

THE KNOWLEDGE INDUSTRY AND INDUSTRIAL DEVELOPMENT

McMaster University - A Vital Link In The Western Lake Ontario Growth Corridor

BY

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&
President
Canadian Institute of Metalworking

In its fifty-third year as a member of the Hamilton community, McMaster University maintains a prominence not just as a local university but as a key institution in the links that bind us all in this great country. Despite it being a medium-size university, its strengths in research and scholarly activities rank it within the top five in Canada.

McMaster University has a deep commitment to both its local community as well as to its nation, for with outstanding resource facilities and capabilities, the University has an acknowledged responsibility to utilise such expertise in ways that will serve effectively the traditional roles of teaching and learning and, at the same time, will foster new initiatives that can be promoted constructively to encourage a better future for society.

The world is experiencing a period of intense, indeed immense, technological change, and economies are undergoing profound structural adjustment, as a result of which, many persons who are well educated and well trained are unable to find suitable employment or create for themselves a place to grow. In one sense, Canada is the envy of other countries who do not possess the wealth of resources and tradition with which Canada has been blessed, while in another sense, Canadians are faced with a future life of economic poverty.

The means, however, are at our disposal to overcome the economic problems, and the Economic Futures Conference is one example that will encourage the improved relationships necessary for society's development. Our goals must be to encourage an overall environment that favours new investment, innovation and enterprise, to initiate new opportunities which other countries are already capitalizing on.

Within an industrialized region such as the Western Lake Ontario Growth Corridor, a university can, and indeed must, play a range of important roles as the knowledge industry that serves as the hormone to catalyse development of a mature and stable community in which business and industry will be nurtured.

It is natural for most people to regard a university only in terms of its undergraduate teaching programmes, with students coming and going, lectures, laboratory sessions, examinations and, ultimately, graduation. This is certainly a substantial activity, for through the professional and non-professional degree programmes, the Bachelor graduates are the cells that unite and expand in an industrial chemistry of growth.

The basis, however, of the educational programmes in a university is its research and scholarly activity, for only through a strong and everdeveloping, enquiring community will new knowledge be found to build with. Students at all levels must certainly be challenged by their chosen vocation, but also, they must realize the challenge that is present in the dimension of the unknown, searching for the truth in and the understanding of their subjects.

It is from this base that McMaster, as this region's knowledge industry, makes its valued contributions. Its students learn to know the facts while developing their capabilities to think and to enquire, then to research and to know.

McMaster University's research enterprise has increased four-fold during the last decade. Indeed, it has doubled since 1978 to a level of external research support in 1982-83 that was in excess of $33 million. That figure constitutes a nearly 19 per

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cent increase in just one year. Its commitment and involvement in research can be measured when it is considered that these expenditures constitute some 28 per cent of the total University expenditures, compared with many Canadian universities which are struggling to maintain 12 per cent. When the indirect costs for faculty salaries and the overhead costs are paid from the operating income, the value of the research enterprise approaches $65 million. Such a level of activity, involving over 2,500 people, places McMaster in the realm of big business.

In a traditional sense, the hallmark of university research is its continuing contribution to the capital wealth of knowledge, an asset which Canada, as a developed country, must continually build and protect. Some criticize the universities because of their predominant focus on fundamental research, but it is really from that stock which society draws to pursue new technologies, new medical advances, new social understandings, humanitarian appreciations and its own historial perspective. This country cannot become dependent upon other nations for such equity.

It may surprise many to learn that the essential efforts of basic research are indeed rooted in the universities. Most industries carry out very little. That strength of capability and accomplishment must be guarded at a time when repeated emphasis is being made to re-orient those objectives to suit today's immediate needs. The continuing pursuit of fundamental

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knowledge and the creation of new understandings in medicine, science, engineering, social sciences and the humanities are vital building blocks for Canada's future.

Having said that, however, the universities are increasingly appreciative of their responsibilities to society, and, at McMaster University, it is acknowledged that an important role must also be played in assisting others with more immediate concerns. The difficult part is finding the right blend of basic and applied research.

With a wealth of facilities and expertise, a great deal of which is unique to the area, McMaster acknowledges the necessity to foster opportunities for industry and government to be able to access these resources. Accordingly, applied and mission-oriented research are promoted in ways that allow the University to serve better the broader community.

The highlights of some examples will be of interest.

The University maintains an effective consulting policy for its faculty members in order to encourage industrial interaction. This provides opportunities for one-on-one discussion and assistance to solve current problems. It also affords a desired exposure for faculty to experience the needs of industry which they can then draw upon to develop more meaningful course material for the undergraduate programme and new research initiatives at the graduate level. The industry benefits from the consultation and the University benefits from the real-time experience.

Extending from these activities, McMaster becomes involved in many research contracts with industry and government to carry out specific work which they are unable to do. Ten years ago, it had less than five contracts with external groups. This past year, some $3.5 million worth of research contracts were completed successfully, amounting to about 11 per cent of the research activities. Indeed, in the area of innovative, new research, and not simply testing, participation with industry doubled between 1981 and 1982.

As a result of the Ontario BILD programmes, in two years, $2.2 million of new money has gone into McMaster research with specific focus to the needs and economic development of Ontario's industry. In the same time frame, a further $2.5 million from the Natural Sciences and Engineering Research Council of Canada (NSERC) has been utilised under its Strategic Grants Programme for projects in identified areas of national concern such as Biotechnology, Communications, Energy, Environmental Toxicology, Food/Agriculture, Oceans and Production Engineering.

In conjunction with all of these programmes, strong relationships are maintained with several industries for their people to work on new and unique equipment or to learn new techniques, while students and faculty spend time with those industries to gain experience and to reinforce the industrial effort. In addition, during the summer months, highly-qualified undergraduate students work in laboratories on short-term projects to kindle an interest in the process of research and development and to attract them to careers which will ultimately serve the industrial needs of the R&D enterprise tomorrow.

The University is always seeking new ways to enhance these efforts.

It would be impossible to provide even a bare insight into but a handful of the over 2,000 research projects underway at this very moment. It is, however, worthwhile to highlight a few key elements which will serve to identify how McMaster fosters and builds on its strengths. These are through its research institutes.

The Institute for Materials Research involves the work of 44 faculty members with emphasis on interdisciplinary research on solid materials, from metals and ceramics to electro-optical devices, with attention to materials characterization and materials preparation. Its combination of specialized equipment and research capability makes this Institute a frontrunner in Canada for research

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in metallurgy, glass science technology, low temperature work and materials for the micro-electronics industry.

The Communications Research Laboratory involves the research efforts of nine faculty members, nine research staff and 30 graduate students who work on five mainline programmes of signal processing, satellite communications, digital communications, optical communications and surface acoustic wave devices. Its strong ties with the Communications Research Centre in Ottawa and serving as a national centre of excellence in communications research reinforces its international position. Drawing upon the advice provided by an industrial advisory committee which meets to review and to comment on the various projects, the Laboratory has built a strong relationship with Canadian industry and continues to assist them in their R&D.

Three years ago, the University Institute for Energy Studies was established to foster interaction between scientists who are engaged in different fields of study concerning research on nuclear reactor systems, solar energy, carbonaceous fuels and power generation systems. This group is working to develop a link with industry in order that trials in frontier areas can be tested and improved for the benefit of future communities.

More recently, McMaster created the Institute for Polymer Production Technology to work closely with industry on projects

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pertinent to polymer process technology. With the only such programme in Canada, several polymer industries are excited about the prospects of close ties with a research enterprise that will promote opportunities for advanced research in this vital technology and, at the same time, will result in a new source of highly-trained scientists and engineers who will move smoothly into the industrial setting following their university internship.

These highlights, however, would not be complete without mention of two private sector endeavours that McMaster University has created to assist industry in unique ways.

Three and a half years ago, the University established Nuclear Activation Services Limited to draw upon the capabilities of the nuclear reactor facility and provide fast and highly-accurate analytical services for the mining industry. With some specific attention to analysing uranium and gold, NAS uses neutron activation techniques to analyse core samples from mining operations for a full range of metals, including rare earths. Compared with wet assay and X-ray analytical techniques, results from which often require weeks or months to obtain, NAS provides short daily or weekly turnaround in order that mining companies will have current analyses to guide their explorations.

Thirteen years ago, the University gave detailed consideration to the possibility of playing a major role with the manufacturing

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sector through the establishment of an industrial institute that would promote the use of computers in manufacturing processes. More specifically, it was envisaged that a contribution could be made to the industrial revolution in numerical controlled (NC) machines. Accordingly, Federal funding was obtained to create the Canadian Institute of Metalworking.

At this time, the University is in the process of constructing a new high technology facility off campus in the Ancaster Industrial Park where the Institute will be relocated to provide greatly expanded services in Computer Aided Design/Computer Aided Manufacturing (CAD/CAM). With this move to separate, modern facilities, that will increase its available space by a factor of 4 to 14,000 sq. ft., it will operate fully within the private sector to support industrial neighbours as they make the difficult, yet necessary, technology transition.

The Canadian Institute of Metalworking has very strong industrial support through its corporate memberships programme, for as the leading authority and provider of CAD/CAM services in Canada, it means improved productivity and increased access to world markets.

With a staff of 19 experts in a range of CAD/CAM activities, and supported by the most modern interactive graphics design system and NC machining centres, weekly courses are conducted for

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industrial employee upgrading and introduction to this most fascinating world of computer manufacturing technology. The Institute also works closely with industry to assist them in the selection of new machines to replace the outmoded manual machines, and the staff create for the production lines the post-processors and other tapes that retrained industrial personnel will use to redevelop their particular industry's market potential.

The interactive graphics system allows the Institute also to carry out specific design projects for industry which cannot do it for themselves, creating new products and piece parts and developing new manufacturing goods for the North American and off-shore markets. In one instance, it was an improved propeller for a new aircraft which required low noise levels, while another was the dies for a mold and die industry that makes rubber strip linings for automobiles doors. A third is a new concept and design in automotive transmissions.

The aerospace and automotive industries are a natural user of these services, but it is increasingly surprising to learn of small and medium-size manufacturing concerns that can effectively use CAD/CAM services. CIM is promoting its outreach to those sectors as well, and through the auspices of government assistance programmes, funding is available to assist CIM to introduce these industries to the world of computer manufacturing at a time when their resources prohibit the introduction.

These remarks have, so far, addressed what McMaster University is doing to further its relationships with the industrial milieu, but there needs to be a few comments about some things which must be improved.

Two years ago, a conference was held between members of the Canadian Manufacturers' Association and universities to evaluate the interface, or more correctly, to assess why the interface was poor and not developing better. It was interesting that industry's perspective was such that, by and large, it regarded student education as the essential looked-for product of the universities, with a strong interest to see a greater emphasis on vocational-type training. They want graduates who can walk into their plants the day following graduation and do something that is constructive and productive. Only as a secondary, and perhaps minor, goal did they look to the universities as a source of research assistance.

The critical point, however, which emerged was that the industries really did not know what research capability and equipment existed in the universities and they had little idea about the level of expertise. In addition, they regarded the universities somewhat suspect and incapable of doing 'real' things, a most unfortunate misconception.

On the other hand, the universities, as it turned out, had little idea about the needs of industry and a very remote

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conception of how they might assist industry to meet those needs that they were aware of. Another unfortunate concern.

McMaster's attitude and approach for several years has been to build the bridge between the two apparent solitudes, with dialogue that would provide for better mutual discussion and understanding, so that industry could appreciate more what the University in the 1980s is all about and, on the research side, so that needs and expertise might be more readily matched. We have, however, barely scratched the surface of this challenge, despite the impressive dollar figures, and a great deal more must be done.

The challenge, therefore, in the Western Lake Ontario Growth Corridor is for the University and its neighbour industries to meet, to discuss and to search for new ways to be mutually supportive. Through technologically-advanced workshops, personnel exchanges, consulting relationships, research contracts, joint conferences and smaller seminars, collaborative projects, etc., the relationship can, and must, be reinforced so that each other's contributions to growth and development will make a better whole.

The Economic Futures Conference is an excellent starting point, for here people from a variety of walks of life will meet to learn about each other, to open up with a dialogue about their interests and their needs, and, hopefully, to plan to meet again in smaller groups to build the common links.

If Canada is to achieve a strong position in the world marketplace, we must move ahead together with new ideas, new initiatives, new enterprise and renewed confidence, more as partners in the community with an outlook that will continue to reinforce the traditional and necessary roles which we must all serve but with a conviction and a commitment to participate actively in a renewed enthusiasm for an improved Canadian enterprise.

As a result of a forward-looking university attitude and acknowledged expressions of commitment to research activities which go well beyond the traditional role of a university, McMaster University is prepared and is seeking to extend its resource capabilities to the broader Canadian community.

In many of the major research areas, faculty members are increasingly interested to participate with industry in carrying out R&D for industrial benefit and to obtain real-time experience in order to improve their course material and to generate new and interesting research ideas. The University has demonstrated, also, its firm commitment to industry through the establishment of its Nuclear Activation Services as a commercial enterprise to serve external needs and through its prime CAD/CAM resource, the Canadian Institute of Metalworking.

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McMaster University is not a large university by most standards, but it is doing its part and welcomes its neighbours in industry, as well as in government, to join enthusiastically in promoting the economic future. With facilities and resources which are unique and that are available from the level of the freshman to the most senior faculty members, this institution is working to provide a better place in which students can learn and an improved environment from which new community collaboration can grow.

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August, 1983

SESSION IIIb:
CANADIAN INDUSTRIAL POLICY: THE CONTRIBUTION OF AID-TO-INDUSTRY PROGRAMS

During the last decade western industrialized countries have faced, to differing degrees, the same economic problems: high levels of inflation and unemployment and low levels of productivity (OECD, 1980; Economic Council of Canada, 1980). With varying levels of enthusiasm and consistency, the state in each of these countries has responded with a variety of economic formulae intended to restore the post-war economic boom. One of the economic solutions currently being urged on politicians and bureaucrats, particularly in the United States, is known generally as industrial policy. It seeks as its objective the rekindling of economic growth through selective interventions in certain sectors of the economy. Unlike macro-economic policy, which is premised on instruments of stimulus and restraint that span the economy, industrial policy calls for a more disaggregated approach with attention paid to industrial organization and the behaviour of individual firms. It urges the strategic employment of selected policy instruments to achieve goals that are specific to each industrial sector. (Magaziner and Reich, 1982: chapter 28).

Broadly speaking this form of state intervention has typically found more favour in some countries than in others. Japan and France, for example, have traditionally sought economic growth through the transformation of key industrial sectors while others, Britain and the United States in particular, have devoted themselves to the maintenance of a liberal international economy. Setting aside for a moment the proximate causes of this variation, an important element has been the traditional role of the state in each system. In Japan, for example, there is widespread acceptance in industry that it is the guiding role of the Japanese state bureaucracy that secures long-term economic growth (Magaziner and Hout, 1980). In France, the open use of state power for domestic economic purposes has been a theme which has linked political administrations from de Gaulle to Mitterand (Zysman, 1981).

The Canadian state, by contrast, has never enjoyed a level of legitimacy that would enable it to employ a wide range of policy instruments in the restructuring of specific industrial sectors. Domestic industrial adjustment to changes in the world economy has not been an activity in which the Canadian state has normally taken the lead. What the state in Canada has done is to sponsor a resource-led economic development strategy that has consistently sought to harness Canadian industry to domestic demand. Expressed initially in the National Policy this policy direction was resurrected recently in Economic Development for Canada (Department of Finance, 1980a) which outlined, among other things, the (now mothballed) megaprojects strategy.

When the state has endeavored to assist industry adjust to changes in the international economy, arms-length instruments have been the norm. Thus in the pursuit of specialized, internationally competitive firms and products the state has favoured the use of direct grants to industry. These grants (often referred to as subsidies or contributions) are relatively simple and transparent devices which have proven more palatable politically than such instruments as tariffs and public enterprises (Ritchie, 1983: 38). This paper will examine some of the more important of these aid-to-industry programs and their contribution to Canadian industrial policy. It will conclude with some brief observations on the politics of industrial policy and the prospects for major changes in direction.

The Programs and their Rationale

Among those who endorse the general concept, there is no clear agreement on what constitutes the sine qua non, indeed the purpose, of industrial policy. There are, however, at least three potential candidates. The first of these is positive adjustment. According to this perspective industrial policy consists of assisting capital and labour to move out of less productive and into more productive pursuits (OECD, 1979). Policy instruments are devised to encourage firms to abandon activities in which they no longer enjoy a comparative advantage. As an alternative to protectionism, this version of industrial policy requires that the state exhibit considerable fortitude in the face of protests from 'declining industries' and develop mechanisms which will encourage business and labour to plan and execute changes in the productive process.

For others the defining characteristic of industrial policy is state-led investment in high technology. Persuaded that the speed of technological change and the global distribution of innovative activity has opened up serious gaps in technological capability, early advocates of this type of industrial policy stressed the desirability of what has been called 'technological sovereignty' (Britton and Gilmour, 1978 and Science Council, 1979). More recent treatments of this issue have laid greater emphasis on policies designed to ensure the diffusion of 'best practice' technology and the adaptation to Canadian conditions of innovations from the world pool of technology (Economic Council of Canada, 1983). In either case technological innovations are understood to be a major source, if not the major source, of total factor productivity growth.[1]

Finally, the term industrial policy has also been used to apply to measures designed explicitly to transform structurally the economy or particular economic sectors. This frequently means the removal of impediments to the rationalization of Canadian industry or the creation of new economic instruments to overcome perceived deficiencies in industrial organization. Foreign-owned firms have been a favourite target for critics of Canadian export and R&D performance (Williams, 1983). Industrial policy, from this vantage point, must deal directly with this problem. Among the suggested responses to this and other problems of

Canadian manufacturing has been that of world-scale corporations which would meet, its advocates suggest, the emerging challenge of international specialization (Gordon, 1978).

Advocates of an industrial policy for Canada have by no means confined themselves to any one of these usages; indeed many would support measures premised on all three of these definitions. Programs of direct aid to industry, however, can seldom satisfy all of the aspirations of industrial policy advocates. As policy instruments they are limited by their voluntary character (no one is forced to accept a state subsidy) and by the fact that they are firm-specific, not industry-wide instruments. They have one element in common: all endeavor to induce (some would say bribe) individual firms to behave in ways they ordinarily would not. It is expected that this behaviour, an increased investment in research and development (R&D), for example, will yield social benefits over and above the private benefits that accrue to the firms. Administrations of these programs, by this logic, must insure that such social benefits do, in fact, occur, and that the behaviour induced would not have occurred without the subsidy. Of course, even if they are able to satisfy these requirements, direct grants to industry do not necessarily satisfy the objectives of all industrial policy advocates.

(i) positive adjustment. The earliest efforts to devise positive adjustment programs came in response to the lowering or elimination of tariffs. The first of these programs, the Automotive Adjustment Program of 1965, was intended to assist Canadian auto makers to adjust to the trade implications of the Auto Pact and, later (1977), to overcome the problems of higher petroleum prices. The General Adjustment Assistance Program (GAAP) was introduced in 1968 to assist firms to plan changes in production necessitated by the Kennedy Round of tariff cuts and the new import competition that was created. In 1973 the Footwear and Tanning Industries Adjustment Program became the major vehicle whereby the federal government sought to promote rationalization of the industry by encouraging the merger of the stronger firms (Binhammer, et al., 1983: 18-19).

These early experiments with adjustment took place in a period of relative economic buoyancy and proved to be more manageable than initially feared (Ritchie, 1983: 44). In recent years adjustment programs have been introduced in a much less congenial environment. They have been more experimental in both their targets and their administration. The Industry and Labour Adjustment Program (ILAP) is a three year, $350 million program jointly funded and administered by ITC/DREE, Employment and Immigration Canada, and Labour Canada. Its mandate is to "promote industrial restructuring and labour adjustment in communities that have recently experienced large-scale dislocation that has resulted in a significant increase in the level of community unemployment" (DREE, 1980-81, p. 4). The bulk of ILAP funds have been aimed at labour rather than industry and have included wage subsidies for the employment of older workers, payments under the Labour Code Labour Adjustments Benefits (Early Retirement) and incentives under the Critical Trade Skills Training program. The communities eligible to receive ILAP Assistance are chosen by cabinet (10 in 1981-82) with the grants themselves administered by a Community Adjustment Committee.

Perhaps the most innovative and most important of the adjustment programs introduced by the federal government in recent years has been the Canadian Industrial Renewal Board (CIRB). The Board was created in 1981 and charged with the task of revitalizing the textile clothing and footwear industries, diversifying the economic base of the regions in which these industries are located, and assisting displaced workers. Comprised of public and private sector representatives and working with a five year budget of $250 million, the Board has endeavored to assist firms in designated areas to modernize and consolidate. It has an unenviable task. The market in which the clothing and textile industries must compete will still be dominated by products from low-cost countries in 1986, by which time CIRB is expected to finish its task and tariff negotiations in this area are expected to begin. Moreover, the Board has been obliged to encourage plant modernization at a time when few firms have been willing to undertake major capital projects, with or without government assistance.

These obstacles notwithstanding, CIRB represents an important organizational innovation and one which illustrates the complex politics of positive adjustment. Its private sector membership is drawn from sectors of the economy (chiefly the Quebec economy) not directly associated with textiles and clothing. The secretariat for the Board is composed of ITC/DREE officials who operate largely independent of ITC/DREE. Delegating hard choices to part-time, albeit successful, entrepreneurs is a significant departure from the previous practices of the Canadian state. It is a testament to the need for consensus between the state and business before planned adjustments in the level and composition of industrial output can be contemplated.

(ii) technological innovation and diffusion. Since the mid-1960s the Canadian government has maintained a high level of support for industrial research and development. Much of this assistance has been funnelled through the income tax system, particularly since 1978 (Department of Finance, 1980b) and much of it through shared cost programs intended to underwrite the costs of industrial R&D. In aggregate terms these programs have done little to arrest the decline in industrial R&D undertaken in Canada during the last decade. But in terms of the relative emphasis placed on this objective, there can be little doubt of the government's overall commitment. As early as 1972 one observer was moved to declare that the level of government support for commercially oriented R&D in Canada was 'unmatched in the Western World' (Bourgault, 1972:23).

Since 1977 the Canadian government has channelled a large portion of its shared-cost assistance for technological innovation through two programs: the Enterprise Development Program (EDP) and the Defence Industry Productivity Program (DIPP). Until it was replaced in the spring of 1983, EDP could reasonably be called "the Federal Government's main instrument for promoting industrial development" (Binhammer et al., 1983: 14). The program was divided into two parts: 'EDP innovation', in which assistance was offered in the form of subsidies (called contributions) to firms undertaking approved innovations, and 'EDP adjustment', which consisted of loans or loan guarantees ostensibly to assist firms 'adjust'. Unlike its predecessors this program was to be flexible enough that it could fund a variety of activities representing virtually every aspect of the product cycle, from project development to adjustment assistance for beleaguered industries. It was also intended that the program channel more funds to small and medium sized firms. To accomplish this, and to try to ensure that the assistance offered was genuinely needed (that is, the project would not go forward without some form of assistance), the recipients had to meet a "significant burden" criterion. To be eligible for a grant the firm was obliged to demonstrate that the project's cost represented a significant financial burden and risk. This restriction severely limited the assistance available to multinational firms although exceptions were made.[2] Large firms in general, however, do not appear to have been severely disadvantaged (Binhammer et al. 1983: 63-67).

It was in its administration, however, that EDP departed most significantly from previous innovation programs. While EDP was administered by and funded through the Programs Branch of ITC, actual funding decisions were made by Enterprise Development Boards comprised of both public and private sector representatives. A central Board in Ottawa made decisions on projects over $200,000; Regional Boards (one in each province) made decisions on smaller projects. For some politicians, primarily the Minister of ITC, this had the welcome effect of insulating program decisions from immediate political pressures. On the other hand it meant that should the government wish to use its resources to achieve specific objectives (which, in the event, it did not) the strategic manipulation of day-to-day decisions would be more difficult.

The Defence Industries Productivity Program has not faced this dilemma, partly because there exists a large measure of consensus on the purpose of this program. Since its inception in 1959 the objective of the program has been "to develop and sustain the technological capability of the Canadian defence industry for the purpose of generating economically viable defence exports and related civil exports arising from that capability" (ITC, 1977). Like the adjustment programs outlined earlier, DIPP was a direct response to international events, this time the signing of the Defence Production Sharing Agreement (DPSA) with the United States. This agreement, which rationalized the defence industry on a continental basis, threw the Canadian government into direct competition with the very large package of incentives offered by the U.S. Department of Defence. It is perhaps because of the pressure of this competition that in many cases inadequate analysis has been done of the economic consequences of approved projects (ECC, 1983: 70). The Canadian government appears to be locked into this program with the result that relatively large sums ($155 million in 1981/82 compared with $135 million for EDP) continue to be devoted to a rather narrow range of companies whose rationalization and export capacity already outstrips that of many sectors of Canadian manufacturing.

While these and other subsidy programs have been designed to foster innovation, less attention has been paid to the diffusion of technology in spite of the fact the new technology tends to diffuse rather slowly into Canada compared with other industrialized nations (ECC, 1983: 61). Small programs, such as the Technical Information Service and the Program for Industry/Laboratory Projects (PILP), both administered by the National Research Council, have addressed the problem only in a very general way. In January, 1982 the federal government announced the creation of a sector specific program, the Support for Technology Enhanced Productivity Program (STEP), to encourage the development of micro-electronics firms and to promote the use of high technology equipment in all industries. This latter objective is to be accomplished in part by shared cost funding (see Appendix A for some recipients) and in part by the establishment, in various regions, of micro-electronics centers to assist small and medium sized firms that wish to introduce micro-electronics systems into their operations. This attention to the diffusion of innovation seems to be a direct response to the realization that support for industrial innovation was having only limited impact in other sectors of the economy.

(iii) structural transformation. For advocates of an industrial policy of structural transformation, the programs outlined above are piecemeal, inadequate responses largely because they cannot hope to address the underlying problems of the economy. If itis understood, for example, that foreign ownership of most of Canada's export-oriented industrial sectors is to blame for weak export performance and low levels of R&D, ever higher levels of subsidy will do little more than buy a few symbolic improvements (Williams, 1983: 167-68). The problem requires regulatory measures; in short a much higher level of coercion than Canadian governments have so far been willing to contemplate. The same is true for world-scale corporations. Subsidies for particular products will not be enough. The state will be obliged to designate particular sectors and particular firms and offer them support via a wide range of financial and regulatory instruments.

To date, nothing of the sort hasoccurred at least not on a large scale. The Foreign Investment Review Agency continues to screen new investment, but companies already operating in Canada are beyond its regulatory reach. Certain companies, Spar Aerospace for example, have enjoyed strong state sponsorship but not without a level of bureaucratic opposition that makes similar experiments exceedingly difficult. In short, it is the instrument of direct aid to industry that remains the chosen means of developing industrial policy in Canada, with the result that the state's response to the first two versions of industrial policy--positive adjustment and technological innovation--continues to be refined and expanded.

In June 1983 the federal government introduced the Industrial and Regional Development Program (IRDP), the latest in a series of consolidations of aid-to-industry programs. This program does more, however, than simply consolidate: it is the programmatic expression of the marriage of DREE and ITC and as such it combines regional development criteria with the industrial development criteria of the programs outlined above. At the same time it expands on the industrial development criteria by establishing categories of funding based more explicitly on an image of the life cycle of the firm. Assistance will be available in six areas: industrial development climate; innovation; establishment of new facilities; modernization/expansion; marketing; and restructuring.

Superimposed on these categories is a four-fold tier system which distinguishes among regions for purposes of determining the maximum level of support available in each of the preceeding categories (see Appendix B). Each of the country's 260 census regions is placed in one of these four tiers according to its presumed need for economic development assistance. Levels of need were calculated using a "Development Index", with 50% of the weight given to the level of unemployment in each district, 40% to the per capita income level, and 10% to the fiscal capacity of the province in which the district is located. Tier IV contains those regions in which that 5% of the population most in need of assistance resides; Tier III the next 15%; Tier II the next 30%; and Tier I those regions in which the 50% of Canadians least in need of economic assistance reside. Hamilton Wentworth, by these calculations, lies in Tier I. Some additional assistance is available in the "establishment" category for Tier I regions that experience a temporary but significant dislocation in their economy.

What makes these changes particularly important is that the new program will replace not only several of the old ITC programs (DIPP, incidentally, remains intact), but also the programs administered by DREE under the Regional Development Incentives Act ($127 million in 1981-82) and some of those which DREE negotiated with the provinces under the General Development Agreements. Thus the new program has the potential to become a very potent instrument of state assistance to business. The movement to this program, and the type of industrial policy it endorses, illustrates some of the salient features of the politics of industrial policy in Canada, about which we can make some brief, concluding points.

(Some of) the Politics of Industrial Policy

The state in Canada has become increasingly adept at transfering significant sums of money to firms in the private sector. Even those critics who maintain that the desired results are not always forthcoming welcome the state's continued reliance on this instrument, perhaps because they feel it is distinctly preferable to more direct measures of state intervention. Will these latter ever be forthcoming? Will the state subsidies that do exist ever be marshalled to achieve specific goals in a variety of industrial sectors? Three factors seem particularly important in any answer to these questions.

(i) the federal bureaucracy. Ottawa at the moment is divided into two camps: those who believe that the present recovery in the economy will solve most of the problems and put an end to further flirtation with industrial policy, and those who believe that Canada's role in the international division of labour is far from clear and that some form of industrial policy can no longer be avoided. Neither view dominates and consensus on economic policy as a whole (let alone industrial policy) is by no means at hand. It is difficult to see how it might be otherwise. Since the Kennedy Round of tariff negotiations various centers of specialized economic intelligence have been created within the federal government with no agency or department coordinating or exercising final authority over them. The old economic policy establishment--consisting of three departments--was effectively challenged by these new bureaucratic creatures--seventeen in all--whose claim to be heard was based on their attention to micro-economic questions. Major government reorganizations have so far failed to resolve the question of policy leadership, although a large measure of coordination has been achieved.

The latest reorganization, announced in January 1982 and still not complete, lays the groundwork for more consensus, at least in the area of subsidies to industry. The merger of DREE and ITC draws together two departments whose mandates for economic development have always been at odds. The new program, IRDP, confirms the government's intention to make regional development an integral part of industrial policy, but it does not prevent the government from developing, within this regional framework, sector strategies. In typical Canadian fashion, the formulation of precise criteria in each of the categories (innovation, establishment etc.) will be left to bureaucrats who will proceed in an incremental fashion. It appears, however, that they will be guided by task force reports on each industrial sector. Thus, for example, grants in the automotive industry are unlikely to go to firms that wish to establish new parts plants, but they will go to those who wish to modernize existing ones. If this pattern is the dominant one, grants will be based on broad assessments of industrial sectors as well as the narrow incrementality criteria that governed such programs as EDP.

It is much too early to predict whether the new department (at the moment called ITC/DREE) will emerge as an articulator of industrial policy. If it does, it will still face the economically orthodox objections of Finance and the Ministry of State for Economic Development (MSERD). This latter agency, which is a secretariat to cabinet, has absorbed many of the staff functions of both ITC and DREE leaving the new department with essentially line responsibilities. Without bureaucratic allies it is not clear that this department, even if it were so inclined, could make a break with the old pattern of aid-to-industry programs.

(ii) provincial governments. Most provincial governments, with the exception of Quebec, operate rather modest programs of direct assistance to industry. In Quebec the Société de développment industriel du Québec (SDIQ) operates a series of programs which, in 1978-79, absorbed over $50 million of provincial funds. Ontario, the next largest, spent, by contrast, less than $5 million on similar programs in the same fiscal year. For most of the provinces it has been shared-cost programs operated by DREE through which financial assistance to firms has been channelled (Binhammer, et al., 1983: 30-42).

With the creation of the new department, and the expiry of all GDAs (although not all subsidiary agreements) in 1984, federal-provincial relations in the area of industrial policy could change dramatically. Stung by the disappearance of the DREE pot, the provinces are in effect being told that the federal government wishes more visibility and more autonomy in this field. The old GDAs, which were a vehicle for quiet collaboration between federal DREE officials and provincial bureaucrats (Savoie, 1981), will be replaced by broad umbrella agreements to be called Economic Development Agreements (EDA). It is not clear that subsidiary agreements, which were the heart of the GDAs, will be needed any longer except in fields that are clearly areas of provincial jurisdiction.

It is a canon of economic policy making at the federal level in Canada that non-tariff barriers to the movement of labour and capital must be strenuously opposed. But provincial governments are already striking out on their own with plans of industrial development that create patterns of favouritism and competition. There appear to be no serious moves from the federal government to co-ordinate any of this activity; in fact movement in the opposite direction is more evident. Unless the EDAs contain some incentives to induce provincial cooperation and some plan of regional economic development, the federal structure of the Canadian state promises to pose continued problems for industrial policy development.

(iii) business-state relations. On this broad subject only one general observation can be made here: since the 1950s the federal government has been unable to create consultative mechanisms with producer groups that would commit both parties to the pursuit of agreed upon goals. Various tactics have been tried, both inside and outside of the governing party. The most successful of these was the establishment in 1978 of twenty-three sector task forces composed of business, government and, to a more limited degree, labour representatives who were drawn together to discuss the problems of specific industrial sectors. This was a comprehensive consultative effort which opened lines of communication but fell far short of recommending how industrial rationalization might proceed (Brown and Eastman, 1981). Given the rudimentary and ad hoc state of consultation in Canada this was probably as much as could be expected.

Some of the responsibility for this state of affairs lies with business and labour. Neither have national associations that are sufficiently inclusive or authoritative to bind a large constituency. Trade associations at the sectoral level vary considerably in their organizational capacities (Coleman and Jacek, 1983) and many are essentially lobby groups with no resources and no inclination to act as partners in any industrial policy. The presence of multinational corporations in many sectors of manufacturing places further limits on sectoral organization.

In the abstract industrial policy consists of much more than the direct aid-to-industry programs that have been the focus of this paper. In Canada, however, the reality is that they are a fundamental element of whatever policy might be said to exist. Whether they will continue to be the most obvious manifestation of the state's commitment to industrial growth, or whether they will be marshalled in a much larger effort is something politicians and bureaucrats will be the first to know. In Canada public debate of these issues has occurred, and probably will continue to occur, only at the margins.

References

Binhammer, H.H., L.C. McDonough, and G. Lepore (1983). Government Grants to Private Sector Firms, Economic Council of Canada, Discussion Paper No. 227, (Ottawa: Economic Council of Canada).

Bourgault, P. (1972). Innovation and the Structure of Canadian Industry (Ottawa: Science Council of Canada).

Britton, John N.H. and James M. Gilmour (1978). The Weakest Link: A Technological Perspective on Canadian Industrial Underdevelopment (Ottawa: Science Council of Canada).

Brown, D. and Eastman, J. (1981). The Limits of Consultation: A Debate Among Ottawa, the Provinces and the Private Sector on an Industrial Strategy (Ottawa: Science Council of Canada).

Coleman, William D. and Henry J. Jacek (1983). "The Roles and Activities of Business Interest Associations in Canada", Canadian Journal of Political Science XVI (June): 257-280.

Department of Finance (1980a). Economic Development for Canada in the 1980s (Ottawa: Supply and Services).

__________ (1980b). Government of Canada Tax Expenditure Account (Ottawa: Supply and Services).

Department of Industry Trade and Commerce [ITC] (1977). Defence Industry Productivity Program: Administrative Directive (June).

Department of Regional Economic Expansion (1980-81). Annual Report (Ottawa: Supply and Services).

Economic Council of Canada [ECC] (1983). The Bottom Line: Trade, Technology and Income Growth (Ottawa: Supply and Services).

__________ (1980). A Climate of Uncertainty: Seventeenth Annual Review (Ottawa: Supply and Services).

Gordon, M.J. (1978). "A World Scale National Corporation Industrial Strategy". Canadian Public Policy (Winter): 46-56.

Magaziner, Ira C. and Robert Reich (1982). Minding America's Business (New York: Harcourt, Brace Javanovich).

Magaziner, Ira C. and T.M. Hout, (1980). Japanese Industrial Policy (London: Policy Studies Institute).

Organization for Economic Cooperation and Development [OECD] (1980). Technical Change and Economic Policy (Paris: OECD).

___________ (1979). Positive Adjustment Policies (Paris: OECD).

Ritchie, Gordon (1983). "Government aid to industry: a public sector perspective". Canadian Public Administration (Spring): 36-46.

Savoie, Donald (1981). Federal-Provincial Collaboration (Montreal: McGill-Queen's Press).

Science Council of Canada (1979). Forging the Links: Technology Policy for Canada (Ottawa: Supply and Services).

Williams, Glen (1983). Not for Export: Toward a Political Economy of Canada's Arrested Industrialization (Toronto: McClelland and Stewart).

Zysman, John (1978). "The French State in the International Economy" in P.J. Katzenstein ed., Between Power and Plenty: Foreign Economic Policies of Advanced Industrialized States (Madison: University of Wisconsin Press).

Notes

1. This latter concept is connected to the 'growth accounting framework' for explaining productivity growth. See ECC (1983), pp. 14-16.

2. One such exception was made on behalf of Canadian General Electric which received a grant for a product of which CGE was the only producer. The EDP Board argued that this plant should be considered a "full facility" and not merely a branch of the larger corporation.

APPENDIX A

Firms Receiving Grants Under the STEP Program to Incorporate Microelectronic Systems in their Operations

FIRM AND ADDRESS	TYPE OF ACTIVITY
Frank W. Horner, Ltd. Montreal, Quebec	Pharmaceutical Manufacturer
Pirelli Cables, Inc. St. Jean-sur-Richelieu, Quebec	Electric Cable Manufacturer
Daag Sportswear of Canada Ltd. Edmonton, Alberta	Sportswear Manufacturer
Les Industries du Hockey Canadien 1975 Inc. Drummondville, Quebec	Hockey Sticks Manufacturer
Beline Manufacturing Co. Ltd. Kindersley, Saskatchewan	Agricultural Chemical Applicators Manufacturer
Tan Jay International Ltd. Winnipeg, Manitoba	Clothing Manufacturer
Woodbridge Foam Corp. Rexdale, Ontario	Foam Products Manufacturer
TPK Solar Systems Inc. Nepean, Ontario	Solar cells and Arrays Manufacturer
BCH Unique Inc. St. Martin, Quebec	Acrylic Products Manufacturer
Les Products Dual-Lite Ltee St. Leonard, Quebec	Emergency Lighting Systems Manufacturer

Source: "Microelectronics Grants Are For Everyone", Canadian Electronics Engineering, August, 1982, p. 11.

APPENDIX B

INDUSTRIAL AND REGIONAL DEVELOPMENT PROGRAM

PROGRAM SUMMARY

PROGRAM ELEMENT	ELIGIBLE PROJECTS OR ACTIVITIES	MAXIMUM CONTRIBUTION LEVEL			
		TIER I	TIER II	TIER III	TIER IV
Industrial Development Climate	a) Economic development studies; establishment of non-profit centres or institutions.	Eligible	Eligible	Eligible	Eligible
	b) Infrastructure related to industry.	Not Eligible	Eligible	Eligible	Eligible
Innovation	Consultant studies; development of new products or processes; technological capability; development and demonstration; design.	50%	60%	75%	75%
Establishment	a) Consultant studies.	50%	60%	75%	75%
	b) Establishment (35%)*	Not Eligible	35%	50%	60%
Modernization/ Expansion	a) Consultant studies.	50%	60%	75%	75%
	b) Modernization/expansion;	25%	35%	50%	50%
	c) Adaptation of microelectronic/ electronic technology.	50%	60%	75%	75%
Marketing	a) Consultant studies. Collection/dissemination of tourism information; special events.	50%	60%	75%	75%
	b) Market research and events to promote Canadian products for non-profit organizations.	Eligible	Eligible	Eligible	Eligible
Restructuring	a) Consultants studies.	50%	60%	75%	75%
	b) Restructuring (Repayable)	25%	25%	25%	25%
	c) Restructuring (loan guarantees)	Eligible	Eligible	Eligible	Eligible
	d) Participation Loans	Not Eligible	Eligible	Eligible	Eligible

* 35% support available for Special Tier I

SESSION IIIc

AN APPRAISAL OF TAX POLICIES
TO STIMULATE BUSINESS ACTIVITY

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SESSION IIIc

AN APPRAISAL OF TAX POLICIES TO STIMULATE BUSINESS ACTIVITY IN THE WESTERN LAKE ONTARIO GROWTH CORRIDOR

I. INTRODUCTION

Balanced regional economic development is generally viewed as a desirable objective along with other goals such as full employment, price stability, a favourable balance of international trade and a high rate of national economic growth. To aid in achieving these objectives governments can employ several instruments including regulation, expenditures and taxes. For example, the federal government can attempt to increase Canada's trade balance by restricting imports, giving greater support to trade missions and by reducing taxes on exports.

This paper emphasizes the goal of increasing economic activity in a "slow growth" region through the use of tax policies but it should be recognized that there are several other instruments which can be used to stimulate a regional economy and that the tax system has several other functions. Taxes are designed not only to help attain specific economic goals but are also expected to be fair, easy to understand and administer, and to raise revenue. Altering a tax to help achieve one goal may reduce the effectiveness of the tax in fulfilling another function. For example, the introduction of a tax provision which reduces the cost of production for businesses in one region may favour a particular group of investors, increase the complexity of the tax system, reduce government revenues and lower the level of national output.

I would like to thank J. B. Burbidge and P. J. George for their comments on an earlier draft of this paper.

There are various tax measures which may be employed to stimulate economic activity in a region, but there are also significant impediments to employing these tax schemes. The feasibility of employing tax measures to stimulate business activity and employment in the Western Lake Ontario Corridor is a critical policy issue for the 1980s.

II. DESCRIPTION OF TAX POLICIES

The levying of taxes and charges rarely stimulates business activity and usually reduces it. In rating alternative revenue sources with respect to the goal of economic growth, the best levy is the one which provides the least disincentive to business activity. Once revenue programs are in place, however, incentives to undertake various activities can be introduced by reducing or eliminating taxes and charges. The individual income tax provides, for example, an incentive for private investment by excluding half of capital gains from tax, and encourages post-secondary education and contributions to charities through allowable deductions, and political contributions through a credit. The sales taxes encourage the consumption of food and the property tax gives an incentive for charitable organizations to invest in land and buildings through tax exemptions. The corporation income levy has several provisions for reducing taxes if expenditures on buildings and equipment are made. Although all taxes and charges could be altered in an effort to increase business activity in a particular region, this discussion is limited to some changes that could be made in income taxes, property and business taxes and municipal service charges.

Corporation Income Tax

The corporation income tax has been used to achieve a wide variety of objectives in Canada during the past twenty years. Tax changes have been employed to attain very broad objectives such as increased output and employment and narrow objectives such as greater investment in pollution control equipment and production of films. Tax schemes have also been introduced to stimulate business activity in particular regions.

A reduction in corporation income tax rates for businesses that locate in designated geographic areas would tend to encourage business activity in those areas. At present there are several different corporate tax rates in Canada and there many precedents for employing rate reductions to accomplish particular objectives. Tax rates are lower for profits earned in manufacturing and processing because it is believed that these activities increase employment and business activity by a greater amount than other methods of earning corporate income. Profits earned by small Canadian corporations are also assessed at a lower rate of tax than other corporations. Reducing the tax rate for businesses in a particular region would tend to encourage new firms to begin operations in the region and for resident businesses to expand their operations. The reduction in rates could take several forms. It could be temporary (e.g. five years) or permanent. The plan could encompass all corporate profits earned in the region or only include profits from new or expanded operations. The latter, of course, would cost less in revenue loss to the senior government, for a given rate reduction. A program which provides for a complete five year "tax holiday" for profits earned from a new or expanded operation may provide the greatest stimulus for a given amount of lost revenue.

There are several income tax schemes which provide an incentive for increasing business activity through decreasing the effective cost of inputs. The most commonly used programs reduce the after-tax cost of capital expenditures. One program used extensively in Canada is a capital cost allowance scheme that allows businesses to accelerate the rate at which they depreciate plant and equipment expenditures when computing their taxable profits. If a business purchases equipment which can be used for ten years, the normal method of depreciating the equipment is to subtract one tenth of the original cost from the sales of the business each year for ten years. If an accelerated capital allowance scheme allows the business to subtract the entire cost over two years when calculating taxable profits, these profits and the corporate tax will be much lower for two years and higher in the next eight years. The present value of the profits left with the business is higher in this latter case and, thus, the accelerated capital cost allowance scheme can be viewed as reducing the cost of the equipment. At the present time there are several different capital cost allowance rates, where the rate depends on the item purchased (e.g. equipment has a higher rate than buildings) and the industry employing the capital item (e.g. items used in manufacturing and processing may have a higher rate than if used in other industries). A scheme could be introduced whereby businesses in a given region are allowed a more favourable capital cost allowance rate for new equipment and buildings. This would encourage businesses to expand and "modernize" their operations and encourage new firms to begin production in the region.

Two other programs which reduce the cost of capital expenditures are to increase the cost base of a capital item and to grant a tax credit for new expenditures. Under the first plan the cost of an item may be increased artificially by some percentage (e.g. 10 per cent) and the business is then allowed to depreciate this inflated cost in computing taxable profits. Under the investment credit scheme a business is allowed to subtract some percentage of the item's cost in the year of purchase, as well as depreciating the full cost of the investment. The investment credit currently varies by region (i.e. 20 per cent in the Atlantic provinces and in the Gaspé, 10 per cent in other designated regions, and 7 per cent elsewhere) and either program could be tailored for other regions.

Programs which reduce the cost of other inputs are employed less frequently but some plans have been developed to reduce the cost of labour. One measure introduced in Canada during 1978 provides a tax credit for business that create new jobs meeting specific criteria. The government contribution is paid through a reduction in the income tax paid by the business and the rate of subsidy ranges from $2.00 to $1.50 per hour, where the rate depends on the economic conditions in the region. Other suggested programs involve increased deductions rather than tax credits and are based on an increase in the number of full-time workers, as opposed to a subsidy on increased hours of work. All of these schemes provide an inducement for a business to increase its level of economic activity and employment. The programs could be designed to provide more aid to high unemployment areas and consequently cause businesses to migrate to these areas.

There are other input-related schemes which focus on specific types of expenditures. One example is the Canadian provision which allows businesses to deduct 150 per cent of an increase in expenditure on scientific research when calculating taxable profits. This scheme provides an incentive to increase research and development efforts and if a higher rate of deduction was restricted to a specific region, a growth in research and high technology firms in the region would likely result.

Another corporation tax scheme which encourages increased business activity is a deduction or tax credit based on total output or increase in output. Output could be measured in physical terms but is more frequently measured in the amount of value added by the business (i.e. sales less purchases from other firms). This program is directly related to business activity rather than the costs incurred by the firm and, thus, may provide a stronger stimulus than other measures.

Property and Business Taxes

Changes in property-based taxes could provide an incentive for increased business activity in a particular region. In the United States, where individual municipalities have greater control over their property levies, property tax arrangements are one instrument used to attract new industry and keep existing businesses. One change in the property tax which may provide a stimulus to business is to lower the mill rate on business property and possibly raise it on residential property. This would reduce the cost of one input to business and may provide as much or even greater incentive to increase output as the corporation tax schemes which reduce the cost of capital expenditures. This cost advantage may be partly off-set, however, if the increased mill rate on residential housing caused the cost of labour to rise.

Another method of reducing property tax costs to businesses is to reduce the assessment value of business property relative to residential property. This method is a less obvious way of aiding business and allows a region to vary the subsidy by type of industry or by each business. In a special case a local government may agree to reduce the assessment to zero for a number of years to induce an existing business to stay or encourage a new firm to locate in the area.

The business tax also provides a vehicle for stimulating business activity. At present the tax is essentially a percentage of the property tax on business, where the percentage varies by type of business (the rate ranges from 140 per cent for distilleries to 25 per cent for car parks). One method of reducing the total property-based levies on business is to decrease the business tax percentages and raise the mill rate on all properties. This would reduce the tax on businesses and raise it on residential property. Specific types of businesses could be encouraged by reducing the property tax percentages for desirable industries and raising the percentages for others.

Local Charges

Local governments provide several services and can develop pricing schemes which affect the activity and location of businesses. Three services generally provided by localities are water, refuse collection and sewage collection and treatment. Charges are generally levied on the beneficiaries of these services according to a formula. Water charge formulas can be designed to aid large water-using businesses by setting a high rate for the first few thousand gallons and a low rate for the gallons used above this level. The same type of formula for sewage collection can be constructed and the treatment costs can be covered from this general formula rather than levying a surcharge on businesses which discharge extra strength wastes. Refuse collection costs can be covered by the property tax levy or covered by direct charges where the charge formula favours large users at the expense of small users (households) of the service. As is the case with property assessments, special arrangements may be made with large firms which are deciding where to locate. All of these schemes lower the costs of a business input and may stimulate business activity in a region.

IMPEDIMENTS TO EMPLOYING THE TAX POLICIES

All of the tax and charge measures described above appear to have some potential for stimulating business activity and increasing employment in a particular region. There are, however, several impediments to introducing these programs. There have been substantial criticisms levelled against these schemes when employed at the national level and even stronger arguments can be marshalled against their use to increase economic activity for a specific region. It is charged that these revenue measures cause a misallocation of economic resources (inputs), create large revenue losses, add to income distribution inequities, and are difficult to administer. Furthermore, it is argued that there are legal and political difficulties associated with implementing these schemes at the regional level. Last, the effectiveness of these revenue programs in stimulating business activity is questioned.

One of the goals of a tax system is neutrality. This implies that the tax system should not affect the form of business organization (e.g. corporation vs partnership), consumer purchasing patterns (e.g. food vs travel) and choice of inputs by a business unless the tax is designed to offset a distortion such as the use of an input which pollutes the environment. Many of the tax measures discussed earlier involve a reduction in the effective cost of a particular input. The local charge schemes would reduce the cost of water, sewage collection and treatment and refuse collection, the property tax programs reduce the cost of buildings, land and equipment, and most of the corporation tax programs would reduce the cost of capital or labour. If the revenue system is employed to decrease artificially the cost of specific inputs, businesses will tend to substitute the subsidized input for other inputs. This substitution causes a misallocation of resources if inputs are being used efficiently before the tax measure is adopted. In cases where equipment and plant expenditures are being subsidized, the substitution of capital for labour may also decrease employment and, thus, be contrary to one of the objectives of the tax plan. In addition, the tax measure may favour one type of industry over others because it uses more of the subsidized input (e.g. capital or water) and as a consequence, have an uneven impact on the prices of various consumer goods. If these tax measures are employed on a regional basis, inputs may not be used where they are most productive and the national rate of economic growth may fall. For example, reducing the cost of capital for businesses in one region would cause capital to shift to this region from other regions. Output would increase in this region and fall in other regions. National output would fall if capital was employed in its most productive uses before the introduction of the special tax provision for one region. The strongest case for a tax scheme favouring one region is where capital or other input is not being put to its best use due to some distortion such as imperfect competition and the tax provision offsets the distortion.

The adoption of revenue reduction schemes to stimulate business activity reducesgovernment revenues, at least initially. As a consequence, governments must reduce expenditures, gain additional revenues or increase the amount of borrowing. All of these alternatives are likely to have some economic and political costs and local governments may not be allowed the option of increasing their debt. An expenditure reduction associated with the loss of specific revenues is generally spread over several government programs and the value of the reduced services is difficult to quantify. Nonetheless, there would be some loss in benefits to the present recipients and it may be substantial. There is also some cost of raising revenue from other sources. The "new" taxpayers place a value on the funds they would pay in taxes and both increased rates and new levies are likely to create new distortions such as a greater difference between gross and net wages or change in the relative price of goods. Increased borrowing may raise the interest rate facing the government and adds to the problems of managing debt.

Not only are there costs associated with a loss of government revenue but the gains to individuals resulting from the lower tax payments are likely to be distributed in an inequitable manner. The reduction in taxes paid by businesses could be shared among owners in the form of higher profits, among customers in the form of lower prices, and among owners of other inputs in the form of higher wages and other payments. Although the empirical evidence on the question of "who gains" is subject to different interpretations, most analysts agree that a very large proportion of the benefits accrue to business owners. Given the high proportion of foreign ownership of Canadian industry and the likelihood that foreign owners benefit from these business incentive schemes more per dollar of investment than Canadian investors, it is probable that more than one-third of gains are realized by foreigners. In addition, ownership of Canadian businesses is concentrated in the high income groups and, thus, the Canadian share of the total tax benefits are obtained by high income receivers. This distribution pattern conflicts with the overall goal of tax policy, which is to reduce income inequalities. The loss in revenue and the distribution effects of reducing taxes in one region is small, but it may be difficult to restrict a tax reduction scheme to one or a few regions for obvious political reasons.

Revenue reduction measures appear to be simple and easy to implement but, in practice, many of them are difficult to administer. First, it is difficult to define the target area. It is convenient to employ existing political boundaries but this may result in excluding some areas which "should" be covered by the tax policy and including other areas which "should not" receive the benefits of the scheme. In any event, there are likely to be some spillovers to other regions. Some individuals who live outside the target region may gain employment within the region. In this situation, the tax reduction plan may not be effective in reducing the unemployment rate in the region. Moreover, it is difficult to determine for specific businesses the proper base for incremental subsidies for plans based on increased output or employment. The previous year may not be a good index, especially if it was a poor business year or if firms were aware that a plan of this nature would be adopted. Definitions of employees or output are also not easy to construct. For example, are salesmen, consultants and summer workers included? Third, measures which aid capital purchases encounter problems of separating land from buildings and equipment and making certain that equipment is not transferred to another region. Last, plans based on output require that information on purchases from outside the region be accurate. Otherwise, businesses may import items in a nearly finished state and get the subsidy without contributing very much to the business activity of the region. In general, the smaller the region, the greater are these administrative difficulties.

There are also a host of political and legal problems associated with the introduction of these tax measures to stimulate business activity in a particular region. For plans implemented through federal and provincial levies, such as the corporation income tax, these would no doubt be intense lobbying to be included in the scheme by representatives of local areas, once it was known that a program to aid small regions was under consideration. Selecting the successful areas may cause political costs of such a magnitude that no governing political party would undertake the task. The property and business tax schemes would require provincial approval because even though these levies are municipal revenue sources, they are subject to provincial control. In Ontario, industrial assessment is undertaken by the province; the mill rate differential between residential and commercial properties is determined by the province and there is no provision for "special deals" with specific industries. The political costs of making exceptions to these general rules for specific regions would be substantial. The municipal charge schemes are subject to some manipulation to encourage business activity but there are large political costs of moving too far from a formula which relates charges to costs of providing service and to "special arrangements" with specific businesses.

Effectiveness of Revenue Measures

The effectiveness of revenue reduction schemes in stimulating business activity and employment is difficult to determine because there are several factors in addition to taxes which influence a firm's decision to alter its output or locate in a particular region. Due to the difficulty of measuring the effects of tax policies, the question has been approached in many different ways.

One method frequently employed is to survey business leaders. Some surveys focus on locational decisions and ask which factors have the greatest influence in determining business location. Other surveys attempt to measure directly the effectiveness of tax policies. If an accelerated capital cost allowance is being examined, for example, questions emphasize the increase in investment, the amount of investment directly applicable to the tax measure, and the impact of this investment on employment and sales. The results of the first type of study, many of which have been conducted in the United States, indicate that taxation does have some influence on choice of location, but is less important than labour market conditions, distance to markets and raw materials, and availability and cost of different modes of transportation. The second type of survey tends to show that the tax reductions cause a modest increase in economic activity, although some businesses do not change their behaviour and reap windfall tax gains. One exception to this general conclusion is the surveys conducted by the Department of Finance after the introduction of the corporation tax changes in the mid-1960s, which indicate that the tax changes had a substantial impact in increasing investment and employment.

A second category of studies attempts to measure the impact of the tax programs by computing the reduction in business costs due to the program. These studies operate under the implicit assumption that the greater the reduction in costs, the more effective is the tax program. The studies are useful in comparing the cost reductions due to various tax programs but do not provide estimates of how economic activity changes with respect to the policies.

A third method of analyzing tax policies is to employ statistical techniques to determine how investment expenditures or employment vary with respect to changes in several variables, generally including some measure of demand as well as a measure of costs. Once the relationship between changes in investment and changes in costs is known, the impact of a tax reduction, which reduces costs, on investment expenditures can be measured. Two conclusions stand out from the studies conducted for corporation tax changes in Canada. First, the tax changes do encourage increases in investment expenditures but the increase may be less than the loss in government revenue. Second, there are large time lags between the time the policy is introduced and the time of the added investment because it takes businesses time to plan, make orders and receive equipment. In most cases it takes at least two years before there is a marked increase in investment. Among the income tax instruments, the investment credit appears to generate the largest increase in investment per dollar of revenue loss. There do not appear to be any reliable statistical studies which measure the effectiveness of specific policies based on employment or output subsidies or on changes in local charges and property based levels. The existing studies of the effectiveness of tax reductions in stimulating business activity are far from definitive but the results indicate that the tax measures examined have only a modest positive impact.

IV. CONCLUSIONS

There are several revenue reduction measures which could be introduced in an effort to stimulate business activity in the Western Lake Ontario Growth Corridor but there are impediments to employing them. Many of the potential schemes involve federal and provincial levies and it would likely be difficult to convince senior governments to enact legislation which favours the Western Lake Ontario area, unless it can be demonstrated that there are large and area-specific distortions which can be at least partly removed or offset by special tax provisions. Income, commodity and payroll tax rates do not vary by region at present and there would be substantial political (and perhaps legal) problems in introducing a system of regional tax rates. Other programs such as investment, employment and output credits, and accelerated capital cost allowance schemes could be tailored to regions, but the revenue loss may exceed the gains from a national or provincial perspective and the administrative problems are significant, especially since the Western Lake Ontario Area cuts across political boundaries. In addition, a program of this nature would almost certainly be based on economic factors such as per capita income and unemployment and it is far from clear that the Western Lake Ontario area would be included as a "have not" region unless more than one-half of the country or province was included. The worst scenario is that a program favouring some Ontario regions is introduced but the Western Lake Ontario Region is not eligible for the tax reduction.

Property tax reductions also do not appear to be a feasible alternative. The government of Ontario is on record as favouring market value assessment of real property and has made a substantial effort to equalize the assessment of industrial property across localities. It is also unlikely that the province would look with favour upon any scheme which allows regions to compete for industry through property tax reductions.

Local charge reductions are, in principle, a more feasible instrument to encourage business activity than tax measures but the scope for employing them is limited in the Western Lake Ontario area. The localities do not collect industrial waste and subject only a few businesses to sewer service surcharges for extra-strength wastes, so that reducing refuse and sewer surcharges are not effective instruments for aiding industries. Water and sewage charge formulas are similar to those employed by other localities in Southern Ontario and it would be politically difficult to alter them in favour of certain businsses. For many businesses, water and sewage charges form only a small percentage of total costs in any event.

Governments can give more effective aid to stimulate business activity in a specific region through increased expenditures than by revenue measures. Local efforts directed to providing credit guarantees, improved transportation facilities, and lower land costs may be more fruitful in stimulating business activity than reducing local taxes and charges. At the federal or provincial levels of government it is probably more productive for the Western Lake Ontario Region to lobby for facilities which stimulate business, such as an airport or convention centre, than for special tax concessions. If tax incentives are to be pursued, it might be more productive to support general programs which can be used by all Canadian or Ontario businesses. If selective measures are sought, it might be best to lobby for schemes that are of special aid to industries which are critical to provincial and national economic growth and are heavily concentrated in the Western Lake Ontario Region, such as the steel industry. Senior governments are likely to find it easier to aid a basic Canadian industry than all businesses in a specific region.

REFERENCES

Advisory Commission on Intergovernmental Relations, *Interstate Tax Competition*, (ACIR: Washington, D.C.), 1981

Richard N. Bird, Tax Incentives for Investment: *The State of the Art*, (Canadian Tax Foundation: Toronto), 1980.

F. J. Harman and J. A. Johnson, "An Examination of Government Tax Incentives for Business Investment in Canada", *Canadian Tax Journal*, Nov.-Dec. 1978, pp. 692-704.

Charles E. McLure Jr., "Administrative Considerations in the Design of Regional Tax Incentives", *National Tax Journal*, June 1980, pp. 177-188.

SESSION IIId

GOVERNMENT AS A CATALYST
FOR ECONOMIC DEVELOPMENT

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SESSION IIId
GOVERNMENT AS A CATALYST FOR ECONOMIC DEVELOPMENT

I Introduction

Governments act as catalysts for economic development in a variety of ways. Four of these ways are treated in this paper:

(i) Government as a direct employer.

(ii) Government as a producer and provider of goods and services (final consumption goods).

(iii) Government as a producer and provider of physical and social infrastructures (intermediate consumption goods).

(iv) Government as a regulator of economic activities.

Each role will comprise a separate section of the paper, although each role overlaps to some degree.

Excluded from this paper are two other roles of government critical for economic activity:

(i) Government as providers and producers of direct services to business and industry.

(ii) Government as a taxer of individuals and corporations.

These roles are treated separately in other background papers.

One word of warning is necessary. The findings and conclusions of this paper are based on the best available rather than the best possible information. Governments do not routinely collect all appropriate statistics on their roles, nor do they routinely disaggregate their information for a region like Western Lake Ontario. I rely on evidence collected from a variety of sources, and unless otherwise stated, the Western Lake Ontario region is defined as the Census Metropolitan Area of Burlington, Hamilton-Wentworth, and Grimsby.

II Government as a Direct Employer

Government is the largest employer in the country. Expenditures on manpower are the largest single item in government budgets by object of expenditure, and these expenditures generate multiplier effects in the economy.

The following statistics indicate the magnitude and importance of public sector employment:

(i) Public sector employment constitutes 26% of the labour force in Canada as a whole, 22% of the labour force in Ontario as a whole, and 11% of the labour force in Western Lake Ontario.

(ii) In the aggregate, 720,000 are employed by all levels of government and by government funded institutions in Ontario. Some 24,000 are similarly employed in Western Lake Ontario (see Table I).

Table I: Public Sector Employment in Ontario and Western Lake Ontario, 1981.

	Ontario	Western Lake Ontario
	Thousands	
Federal Government Employment	213.4	3.5
Provincial Government Employment	141.5	2.1*
Local Government Employment	123.1	6.9
Hospitals and School Boards	242.6	11.4*
TOTAL	720.6	23.9

* Excludes employees in Burlington and Grimsby.

While the current totals of public sector employment tell us something about the overall importance of the public sector as a generator of employment, they tell us little about the direction this employment is taking in size and composition. Key trends are as follows:

(i) Public sector employment in Ontario continued to increase its market share of the labour force in the last two decades, rising from 16% (1961) to 19% (1971) to 22% (1981). While public sector employment has maintained its share of the labour market in Western Lake Ontario, it has not increased its share. It represented 10% of the labour force in 1961, 12% in 1971 and 11% in 1981.

(ii) Public sector employment in Ontario as a whole grew more rapidly in numbers in the 1960's than in the 1970's. The 1960's saw a 53% increase in public sector employment, with the largest increases at the Provincial, school board and hospital levels. This growth largely reflected the "post war baby boom" impacts on schools and universities, and the expansion of public sector health and hospital insurance programmes. The growth of public sector employment in Western Lake Ontario during the 1960's was also attributable to these causes.

(iii) The decade of the Seventies saw an 18% increase in public sector employment in Ontario. Some of this growth was "artificial" in that the Federal Government now included the Armed Forces in its official figures, and local governments also took over and recorded special district employment. But the major growth sectors in the 1970's, at the Federal and local levels, had a lesser impact in Western Lake Ontario, than in other areas of the Province.

Public sector employment is a visible sign of the importance of governments to economic activity. The importance is accentuated by the predominant service characteristics of public sector employment. In the last two decades, 80% of new jobs in Canada occurred in the service as opposed to the extractive and manufacturing sectors. One quarter of these service jobs were in the public sector. If Western Lake Ontario had reflected the economy as a whole, then public sector employment should have increased its share of the labour market in the last twenty years. This has not happened.

The future of public sector employment in Western Lake Ontario is difficult to predict. First, governments at all levels are under financial and political pressure to reduce expenditures. Second, there was in the 1970's no one dominant growth sector - in terms of function - in public sector employment. Western Lake Ontario may enjoy, nevertheless, a comparative advantage over other regions of the provincial and national economies in having developed expertise and facilities in the functional areas of education and hospital services. Sound economics should dictate that such comparative advantages should be exploited. Education and hospital services also tend to be labour intensive services which accentuate the possible roles of government as employer in the region.

III Government as a Producer of Goods and Services

A better indicator of the importance of government is in its role as a producer of goods and services. Technically, it is better to think of government as both a producer and a provider. Governments may "buy" rather than "make" goods and services, contracting out some or all of a government function to the private sector or to another government agency. They may also produce goods and services themselves. The mix between government produced and government provided goods and services is continually changing, and recent trends suggest that more government services are being provided rather than produced by the public sector. More services and inputs to these services are being contracted out by governments.

The importance of this role of government is complicated by another technical factor. Some goods and services are difficult to measure in quantity and quality. National defence is a good example. In cases such as these, it is simpler, albeit inaccurate, to measure such goods not by output but by inputs. These inputs can be measured in physical terms (such as manpower) or in financial terms (such as manpower expenditures). Many of the following findings rely on this simplifying assumption.

As everyone knows, government expenditures have risen continuously since World War II, with the biggest increases occurring in the early 1950's and late 1960's. By 1981, total government expenditures were 42% of Gross National Product (G.N.P.) and for Ontario, they were 37% of Gross Provincial Product (G.P.P.).

The "growth sector" in government expenditures is in the income maintenance policies of government, particularly of the Federal Government.

About 46% of government expenditures (at all levels) are transfer payments to individuals and groups. Approximately one half go to individuals as part of income maintenance policies - pensions, family allowances, and unemployment insurance, for example. The other half are subsidies and transfer payments such as railway subsidies and the national and provincial debt payments. Overall, these transfer payments have grown in importance from 11% of G.N.P. in 1961 to 20% of G.N.P. in 1981. All of the other programmes together have not grown relative to the growth of the national economy. All of the other programmes were 20% of G.N.P. in 1961 and were 23% in 1981 (the 3% increase occurred during the 1960's).

What the overall figures also do not reveal is that Provincial and local governments make a larger contribution to the national economy than does the Federal Government. Federal government expenditures are now 39% of total government expenditures.

The following findings indicate the impact of government expenditures for Ontario:

(i) All levels of government spend in excess of $37 billion dollars in the Ontario economy. Statistics do not enable us to disaggregate these expenditures to any region in the Province.

(ii) Government revenues exceed government expenditures in the Ontario economy (see Table II). The reason is largely the lower level of unemployment transfer payments.

Table II: Revenues and Expenditures of All Levels of Government as Percentage of G.N.P. and Gross Provincial Product (1979)

	Ontario	Canada
Total Revenues	37.3	37.4
Total Expenditures	36.2	39.1
Surplus or Deficit	+ 1.1	- 1.7

Government expenditures, no matter what their initial location, tend to "leak" acrosss political boundaries. Expenditures in Western Lake Ontario may, for example, have multiplier effects, in other parts of Ontario and the country and vice-versa. But because many government programmes are labour intensive, government expenditures tend to begin where public sector employees are located. In this respect, Western Lake Ontario would receive a smaller initial infusion of government expenditures than other parts of the Province, at least before multiplier effects take place.

What these statistics imply are as follows:

(1) The major initiatives for any increase in government expenditures in the region will likely come from the Provincial and local governments. They currently generate most governmental expenditures in the region, and new Federal expenditure increases in the region are difficult to anticipate.

(2) An expanding market may exist in firms and industries prepared to provide inputs or entire services for government levels. These can be firms providing components or other inputs into public services, or firms prepared to contract services for

government (auxiliary policing, fire, waste management and recreation, especially, at the local levels of government, and planning, management, building services and engineering services at the Provincial levels).

(3) The expansion of transfer payment expenditures may be limited because of political and financial constraints on government. But some regional economies may continue to prosper where a large proportion of residents rely on incomes from governmental debt payments. Pension, mutual fund and insurance companies are the major institutional beneficiaries of this trend.

In sum, government expenditures represent an important source of economic activity for the region. There are major uncertainties as to whether these expenditures will change and which level of government will initiate any changes.

IV Government as a Producer of Social and Physical Infrastructures.

One traditional way that governments use to expand economic activity is by producing "intermediate goods" in the forms of physical and social infrastructures. These infrastructures - transportation and communication networks, manpower training and education, legal systems and court structures - are designed to increase the mobility of inputs and outputs used in extractive, manufacturing and service industries. One normally expects these investments to be undertaken and/or encourage by government when, at a minimum, the aggregate benefits exceed aggregate costs over a specified time horizon. One gross indicator of the importance of infrastructure expenditures to the national economy is that $10 billion or some

8% of the budgets of government were spent on transportation and communications alone.

What is important to note is that infrastructure developments can have both beneficial and perverse effects for any one region in a national and international economy. Infrastructure developments can increase the economic advantages of agglomeration, allowing for example, firms and industries to exploit scale economies and affording access to labour markets. Buy they can also allow industries and firms to relocate outside established areas because of reduced transportation and communication costs. Because of a continuing and secular decrease in transportation costs to industries and firms, a decrease encouraged by public sector investments, a regional economy now consists of a number of nodal areas of economic activity, with agglomeration economies working in each of the nodes. Regions like "the Golden Horseshoe" are now spread out and multinodal economies, with cities growing together and relocation taking place across a number of municipal areas. Western Lake Ontario as one "slice" of this multi-centred regional economy thus both benefits and loses by these developments. It benefits from the specialized activities centering around its specialities and it loses as alternatives are relocated around other nodes of specialization in the larger regional economy.

In the light of the economic dynamics to which governments have contributed, three broad choices of strategy exist for governments:

(1) They can continue the present pace of infrastructure development and enhance the specializations within regions. This means that Western Lake Ontario would continue to have an

economy based on the fixed transportation node of docks and railroads.

(2) They can reduce the investment in infrastructures in the region and reallocate resources either toward reinvestment in current infrastructure or to developing new specialized nodes in the region.

(3) They can intensify the current trend towards specialization by increasing investment in new forms of transportation and communication.

In view of the current financial and political exigencies on governments, choice number (2) seems the most likely. It would also be the most viable option for the region of Western Lake Ontario. The region may, for example, be able to benefit from a reallocation of resources intensifying, the roles of the docks and railroads as an import/export centre for South Western Ontario.

In sum, government as a producer of social and physical infrastructures can add to national wealth, but because of the effects of transportation and communication investments, in particular, it adds to the specialization taking place within a large regional economy.

V. Government as a Regulator of the Economy

Governments at all levels attain most of their objectives not by providing or producing goods and services themselves, but by regulation of society and the economy. Regulations include tariffs and quotas on imports and exports, "supply management" restrictions on agricultural commodities, trucking and transportation permits and licences, price regulations on firms and public utilities, land use regulations of local and provincial governments to name a few. They thus can affect the outputs of economic activity, the inputs used in economic activity, and the "byproducts" (like pollution) of economic activities themselves. Despite a flurry of concern by Federal and Provincial Governments in deregulation in the late 1970's and early 1980's, there is no indication that governments wish to give up these instruments of policy. The major constraint on government regulations is that they are costly to enforce.

There are five major reasons why governments introduce regulations. The first and most frequent reason is that certain groups and firms wish to capture economic rents or protect themselves from financial losses by excluding competition. These groups can be farmers, businessmen, unions or even local ratepayers. The benefits can be short run economic advantages for these groups or even long run stability, but the costs are borne primarily by groups and individuals in their other capacities as consumers and taxpayers. The effect of all of these regulations is to protect existing economic activities in any region, but to discourage new and innovative business activities.

The other reasons - protection of minors and minorities, ensuring the quality and accurate quantity of goods and services, controlling natural monopolies, and limiting externalities - are all considered legitimate ways of ensuring economic efficiency, although disputes remain about the best means to attain these objectives.

The net impact of all of these regulations for Western Lake Ontario is impossible to quantify accurately. One accurate conclusion seems to be that they slow down the rate of economic growth by discouraging new and especially innovative business growth. But they may also redistribute economic resources to the region from other regions in the economy. The national tariff policy, the historical lynchpin of Federal Government regulations, contributed substantially to the location of manufacturing industry in Canada in South Western Ontario.

Various kinds of options appear available to governments to stimulate business activity through de-regulation or re-regulation.

(1) They can establish economic enterprise zones in which regulations and taxes are waived in order to stimulate economic growth. Such zones have been established in the U.K. and latterly in the U.S., but the net increase in economic activity has proved to be minimal. Areas outside the zones simply lose economic benefits to those inside the zones.

(2) They can establish free trade zones which are modest versions of economic enterprise zones in that tariff and quota regulations for an area are lifted. Again, while beneficial to the area in question, they tend to be non-beneficial for other areas.

(3) They can de-regulate by sector affording entry into established "producer protected industries". The most immediate benefits occur in sectors that are labour intensive (particularly the service industries) but for an area like Western Lake Ontario this may be of limited benefit compared to other areas in the wider "Golden Horseshoe".

In sum, governments direct and redirect economic activity through regulations. The precise impact of regulations on Western Lake Ontario cannot be measured statistically, but it appears doubtful whether changes would greatly benefit economic activities in the region.

VI. Conclusion and Recommedations

The role and significance of government as a catalyst for economic activities cannot be underestimated. Governments are the largest employers, the biggest spenders, the major organizers and investors in infrastructures, and key regulators of the economy.

The precise impact of these roles for Western Lake Ontario is impossible to quantify. In very general terms, it appears as if the Region has not significantly shared in the expansion of the public sector in the last two decades, it has both benefitted and lost from infrastructure development, and it may have both benefitted and lost from the existing "producer protection" bias of governmental regulations.

New thrusts may well come from adding to rather than counteracting the economic specializations within a larger economic region. The area of Western Lake Ontario enjoys certain comparative advantages over other areas within a larger regional economy. Because of the political and financial limitations on large scale and long run governmental ventures, a limited amount of resources may well realize larger returns by capitalizing on the specializations in the area. For public sector employment and expenditures, this may mean increasing the emphasis on the education and hospital and health sectors. For infrastructure development, it may mean increased emphasis on "traditional" forms of transportation and communication - docks and railroads. And for regulation, it may mean a reconsideration of the obstacles for growth of existing and new industries. All of these thrusts will require joint initiatives and co-operation from all levels of government.

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BACKGROUND PAPERS

DISCUSSION THEME TRACK IV

"COPING WITH THE SOCIAL IMPACT OF ECONOMIC CHANGE"

SESSION IVa

A BLOCKMODEL ANALYSIS
OF FRAGMENTATION
IN AN INTERORGANIZATIONAL SERVICE DELIVERY SYSTEM

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INTRODUCTION

During the past fifteen years or so, a great deal of attention has been afforded the study of relations between human service organizations. The reasons for this are both theoretical and practical. From a theoretical point of view, the impetus to study interorganizational relations (IOR) is traceable to the emergence of a propensity amongst theorists to conceptualize organizations as "open" adaptive systems rather than as "closed" systems. This promoted the perspective that organization-environment interchange is an essential factor underlying an organization's viability, and stimulated the empirical study of organization-environment relations. Since the major factor an organization must take account of in its environment is other organizations, the subject of IOR emerged as a special case of the more general study of organizations and their environments.[1]

From a practical point of view, the study of IOR involving human service organizations is indicative of an interest in ameliorating social ills through improved delivery of service.[2] The general rationale is based on the idea that local human service delivery systems are 'fragmented', or lack sufficient cohesion to ensure that specialized services are provided to consumers in a readily accessible, mutually reinforcing, and nonredundant manner.[3] As a consequence, they tend to be neither efficient or effective. The claim of inefficiency involves the notion that in a fragmented system, service duplication and overlap occur, resulting in an excessive and wasteful use of available resources.

The ineffectiveness claim is based on the argument that the complex, multi-faceted nature of human problems goes unrecognized in a fragmented system. Because human service organizations are functionally specialized, people tend to be treated as if they live at the end of the functionally specific categories which define any single organization's program structure. There is little meshing of services, with the attendant consequence that the services' potentiality for "making a difference" is diminished. The implication for action which follows from characterizing a human service delivery system as fragmented is that if an understanding of the inter-dependency of human problems could be fostered, and if interrelated action of human service organizations in planning and delivering services could be introduced and maintained, efficient and effective service provision would result.

Consistent with these theoretical and practical reasons for its effectuation, research on IOR has generally made the individual organization the unit of analysis, and has focused mainly on the issue of explaining why human service organizations qua organizations do or do not engage in IOR.[4] Yet, when a human service delivery system is characterized as fragmented, a description of more than the interaction patterns of any single focal organization is being offered. Indeed, one is purporting to describe the patterns of interaction within an entire set of organizations. However, as Knoke and Rogers [5] noted recently, empirical investigations of patterns of interaction within full sets of organizations are noteworthy by their absence. What this means in substantive terms for this paper is that the assumption that local human service delivery systems tend toward fragmentation has not been demonstrated empirically as valid. This of course places an important limitation on the degree of authoritativeness which can be accorded explanations of the human services sector, and/or prescriptions for change which start with an assumption of fragmentation.

To observe that the assumption of fragmentation has not been demonstrated as valid is not to offer harsh criticism of past investigations of the human services sector. Rather, it is more a matter of taking cognizance of the fact that until very recently, the conceptual and methodological tools necessary for investigating the validity of this assumption were not available. However, recent methodological advances in network analysis have changed this situation. More particularly, the development of "blockmodel" methods of analysis now permit researchers to undertake investigations of IOR at a network (rather than organizational) level of analysis, and to characterize the structure existent in a given set of organizations in terms of the nature of the interactions among the organizational actors comprising it.[6]

This paper reports on a blockmodel analysis of relational data on a set of human service organizations located in Hamilton-Wentworth. The aim of the analysis is to characterize the structure of the relationships among the organizational actors comprising this set of organizations and, on that basis, arrive at a conclusion regarding whether or not the human delivery system defined by this set of organizational actors can be said to be "fragmented". It is hoped that in discharging these tasks, this paper will not only advance understanding of the human services sector in Hamilton-Wentworth but, in addition, will clearly illustrate the possibility of using a new analytic tool in this sector.

DEFINITION OF SOME BASIC TERMS

The initial decision that must be made in developing any analysis is that of delimiting a relevant population or system of actors. In interorganizational analysis, Laumann, Galaskiewicz, and Marsden[7] point out that this involves selecting a specific criterion "...by which a particular set of organizations is to be analytically treated as a bounded system of interaction, that is, as a community or field of organizational actors." These authors go on to observe that this organizational field is usually delimited using the criteria of common functional interest (e.g. concern with criminal justice, or with mental health) and/or geographic community. Thus, the term organizational field can be taken as referring to a set of organizations which have a common functional interest and/or operate in the same geographical community.

Establishing an organizational field serves to draw boundaries around the interorganization network, which is defined as "a set of organizations joined by at least one set of linkages."[8] It (i.e. the interorganization network) is constructed by finding the ties between all the organizations in the organizational field, and is assumed to "...possess structural attributes that are not derivable from knowledge of the characteristics of its components (i.e. individual organizations)." These structural attributes (e.g. density, centrality, clustering) delineate different aspects of the configuration of interaction, or pattern of relationships, existent among the actors comprising the network. Because ties between organizations are likely to be multiplex (i.e. take on a variety of forms such as board interlocks, information exchanges, and joint programs), network patterns may vary depending upon the particular type of tie the researcher uses to identify the network. For example, the pattern of board interlocks for a given set of organizations may look quite different from the pattern defined by joint programs for the same set of organizations.

The final term requiring definition is fragmentation. It will be recalled from above that fragmentation is conceived of as a condition whereby local human service delivery systems are not able to achieve overall efficiency and effectivenesss because they lack sufficient cohesion to ensure that specialized services are provided to consumers in an accessible, mutually reinforcing, and nonredundant manner. Viewed from a network perspective, this conception of fragmentation can be redefined to mean that a fragmented network is one lacking the kind of regularized patterns of interaction (i.e. structure)[10] that would enable it to act as a unit and attain the collective purpose of the organizational field. Adopting this definition of fragmentation means that it now becomes necessary to derive criteria which which can be used to differentiate fragmented network patterns from the myriad of patterns possible in a complex interorganizational network. The view taken in this paper is that a network can be accepted as fragmented if the patterns of interaction it evinces satisfy both of the following conditions - unequal centrality, with interaction between organizations (to the extent that it occurs) being based mainly on a similarity of functional interest (or homophily).[11] Or, put another way, fragmentation refers to a situation where the organizations comprising an interorganizational service delivery network, when considered in terms of their accessibility to interaction, are roughly equal. No single organization, or group of organizations, stands out because of its high level of interaction with others in the network. At the same time, there is a distinct tendency for the interaction that does occur to be between and among organizations that are similar in terms of the services they provide and how they provide them. For example, sociorehabilitative counselling agencies interact with other sociorehabilitative counselling agencies but not with medical/health agencies, welfare agencies, or law enforcement/correctional agencies, and vice versa. Social planning agencies form a provincial coalition to facilitate communication and the sharing of ideas. Meanwhile, their levels of interaction with their physical planning counterparts in their own communities are minimal.

Figure 1 diagrams a network which satisfies the conditions of unequal centrality and homophily. It will be used here to demonstrate why they have been selected as indicators of fragmentation.

FIGURE 1 about here

To begin, examination of Figure 1 reveals that although the network it depicts contains numerous ties, and might therefore be considered dense, the pattern of relationships delineated by the ties lack centrality. That is, each node in the network sends and receives approximately the same number of ties, with no single node emerging as the centre through which most interaction is directed. Consequently, none of the nodes in this network can be regarded as hierarchically dominant in the sense that its role as a central sender and receiver of ties places it in the position of being able to regulate and control interaction in the system (e.g. a community without a United Way to serve as a focal point for the receipt of funds and their allocation to voluntary agencies, and/or without an information centre to acknowledge consumer requests for service and direct them to specialized services in the community). In relation to this, it has been frequently noted that organizations exhibit centrifugal tendencies which deflect them "...away from the collective purpose with which the field is concerned and toward more parochial activities which maintain the autonomy of individual organizations."[12] If an interorganization network shows unequal centrality, and can therefore be inferred to be lacking in terms of its internal capacity to regulate and control the behaviour of individual organizations (and assuming the absence of an external regulating agency or force), it is to be expected that the centrifugal tendencies of organizations will dominate. As a consequence, the potentiality of the network to act as a unit will be degraded, and a tendency to fragmentation will emerge.[13]

However, a network pattern of unequal centrality is not sufficent in and of itself to indicate a fragmented system. It is also necessary, and perhaps of more importance, to examine the basis on which interaction is founded. In this regard, it is quite possible to conceive of a local human service delivery system made up of a number of subgroupings of organizations, (e.g. coalition of Family Service agencies; coalition of medical agencies; coalition of correctional agencies, etc.) with each subgrouping being highly centralized. If the organizations comprising these subgroupings share common approaches to problems and common service outcome preferences, and if at the same time each subgrouping evinces a strong tendency to confine interorganizational contacts within the group, it is our view that the system's capacity to act collectively is diminished and that the existence of system-level fragmentation is indicated.[14]

The central question of this paper concerns whether it is valid to assume that local human service delivery systems are fragmented. This paper will attempt to answer this question by analyzing a set of organizations which, because they share a general functional interest (i.e. planning for and/or delivering human services) and operate in the same geographical community, can be considered to constitute an organizational field. The pattern of relationships is examined to determine whether or not the ties between organizations, when viewed in aggregate, reveal a decentralized pattern of interaction, thereby indicating a fragmented system, or whether the network is "centralized" and its interactions based on a dissimilarity as opposed to a similarity of interest, thereby indicating a nonfragmented system.

DATA COLLECTION AND MEASUREMENT

Data used in this study were collected in 1980 on thirty-nine human service organizations operating in the regional municipality of Hamilton-Wentworth, a highly urbanized and industrialized community located in Southern Ontario, Canada. The universe of human service organizations was defined in a comprehensive listing of community service organizations operating in Hamilton-Wentworth.[15] Organizations were selected for inclusion in the study population if the boundaries of their service areas corresponded with the boundaries of the Hamilton-Wentworth region, and if they were actually or potentially involved in planning and/or service delivery activity aimed at influencing the social conditions and well being of community residents on either an individual or collective basis. Organizations with less than five full-time employees and/or a life span of three years or less at the time of the study were excluded to keep the size of the study population manageable.

Upon being contacted regarding the research, seven of the thirty-nine organizations refused to participate. Thus, it was possible to collect data directly from only thirty-two organizations. However, since this research is dealing with relational data, and since each of the thirty-two participating organizations provided data on their interactions with each of the nonparticipating organizations, it was possible to retain the non-participating organizations as part of the organizational field and use them in the analysis.

The organizations comprising the organizational field operate in a number of subfunctional areas in the broad field of human services, including health, education, personal social services, crime, recreation, employment, housing, and urban planning and development. Table 1 presents brief descriptive information on the domain of each organization. It also identifies that seventeen of the organizations operate under voluntary auspices, four under quasi-public auspices, with the remaining eighteen being fully public. More detailed information than that contained in Table 1 would reveal that the organizations range in size from five to 1,000 employees, with a mean size of 129. It would also reveal that the average age of the organizations is 36.4 years, with the youngest having been in existence for just over three years and the oldest for 133 years.

The data used in this research were obtained by interviewing the chief executive (in five cases, his/her delegate) of each of the thirty-two participating organizations about their relationships with each of the other organizations in the organizational field. All interviews were conducted by Goodman, and took approximately thirty minutes to complete.

TABLE 1 about here

Four different types of interorganization ties were measured using the data obtained in the interviews.

1. Information Exchange: Is (org. name) on your organization's mailing list to receive any of your newsletters, annual reports, or other information releases?

2. Resource Exchange: Has your organization shared, loaned or provided resources such as meeting rooms, personnel, equipment or funds to (org. name) at any time during the past three years.

3. Overlapping Boards: Does anyone from your organization, including staff, board members or other members serve on the board, council or committees of (org. name)?

4. Joint Programs: Within the last three years, has your organization worked jointly in planning and implementing any specific programs or activities with (org. name)?

Our investigation of the IOR network under study involves the use of blockmodel methods of analysis. In general terms, blockmodel approaches to network analysis are concerned with uncovering the structures implicit in the ties among actors in a social system.[16]

Using a blockmodel approach to analysis as implemented through a specially designed computer algorithm[17] the set of thirty-nine organizations in this study were partitioned into seven blocks. To the degree reflected in the data, each block represents and combines that set of organizations which interact or do not interact with the same other agencies. Following is a listing of the identification numbers (see Table 1) of the organizations in each block, as well as a description of its (i.e. the block) nature or "character":

A. This block contains organizations 1, 16, 20, 26, 29, 31, 35 and 36. It is characterized as a generalist direct service block because each of the organizations assigned to it deal with a variety of problems and needs presented by consumers (e.g. child welfare, YMCA, counselling services).

B. This block contains organizations 7, 22, 28, 33 and 37. It is characterized as institutionalized service block because four of the five organizations assigned to it deal with consumers on an "in-house" basis (e.g. housing, education).

C. This block contains organizations 2, 6, 11, 12, 19 and 38. It is characterized as a interorganizational planning and coordination block because four of the six organizations assigned to it are specifically concerned with implementing interorganizational planning and coordination activity (e.g. social planning, information and referral), and one of the two remaining organizations (i.e. 19, Regional Social Services) has community-wide responsibility in the social services area.

D. This block contains organizations 5, 10, 14, 15, 18, 25 and 34. It is characterized as a specialist direct service block because each of the organizations assigned to it deal only with consumers who have special problems or concerns (e.g. alcoholism, mental retardation).

E. This block contains organizations 4, 8 and 23. It is characterized as a community affairs block because the three organizations assigned to it are concerned not so much with direct service provision as they are with general community improvement and protection (e.g. Chamber of Commerce, police).

F. This block contains organizations 27 and 39. It is characterized as a generalist physical planning block because both of the organizations assigned to it focus mainly on the broad physical aspects of urban planning (e.g. land use).

G. This block contains organizations 3, 9, 13, 17, 21, 24, 30 and 32. It is characterized as a specialist physical planning block because each of the organizations assigned to it deal with a particular technical aspect of urban planning and maintenance (e.g. transportation, engineering, traffic).

Having completed the technical aspects of the block model analysis, the task now is one of interpreting the nature and pattern of relationships detected by the analysis to determine whether or not they reflect the existence of a fragmented system. Specifically, are the patterns of relationship detected decentralized, and based on homophily (or similarity of function), thereby indicating a fragmented interorganizational network, or is the converse the case?

FIGURE 2 about here

Dealing first with the criteria of unequal centrality (or degree of decentralization), Figure 2 contains graphs describing the findings of the analysis. Figure 2(a), (b), (c) and (d) are graphs which show the actual occurrence of interaction between blocks of organizations in the interorganizational network. Conversely, Figure 2(e), (f), (g) and (h) identifies the absence of interaction (i.e. the lines indicate who is not interacting with whom). Examination of graphs (a) to (d) reveals that most interaction involves blocks A, C, E, F and G while blocks B and D tend to send and receive few ties. In no graph do the organizations assigned to block D (specialist direct service providers) interact among themselves with sufficient frequency for a self-bond (indicated by ↻) to appear. This means that specialist service organizations are structurally similar in their isolation from each other and would be isolated from other organizations in the network except for interaction mainly with block C organization (i.e. interorganizational planning and coordination organizations).

Similar to block D, block B organizations (institutionalized service providers like education) tend not to interact with each other. It does have some members on the boards of block C organizations and does engage in joint programming with block E (community affairs organizations). Its remaining linkages involve ties that are sent to it but not reciprocated. Thus, it appears that institutionalized service providers in Hamilton-Wentworth are fairly passive and only loosely connected to other organizations in the area. They accept interaction aimed at them but otherwise ignore members of the interorganization field under study.

Regarding the remaining five blocks, more frequent linkages occur. Inspection of graphs 2(a), (b) and (c) show that generalist service providers (A), interorganizational planners (C), and community affairs organizations (E) engage in reciprocal interaction, sending and receiving information, exchanging resources, and placing members on each other's boards. This observation also applies to generalist physical planning organizations (F) and specialist physical planners (G). But, on the remaining tie of joint programming, interaction involving organizations in these five blocks either disappears or becomes one way. For the organizations in block A, C and E, and blocks F and G, these findings imply decentralized but nonetheless stable and fairly rich pattern of interaction when interaction is based on information and resource exchanges and board overlaps. When it comes to joint programming (or actually working together in service provision), however, there is a change as each of the organizations in these blocks tend to interact only with organizations in their own block while behaving as isolates vis-a-vis organizations in other blocks.

A second observation regarding the overall patterns of interaction for block A, C, E, F and G deals specifically with block E organizations. As already noted, generalist service providers (A) and interorganizational planners (C) interact frequently with each other, as to generalist and specialist physical planners (F and G respectively). Further, the organizations in each of these blocks interact frequently and on a reciprocal basis with community affairs (or block E) organizations. This general pattern of interaction implies firstly that there is some tendency toward coalition formation in the interorganizational field, based on interaction between generalist service providers and interorganizational planners and generalist and specialist physical planners respectively. At the same time, the existence of isolationism between these coalitions is alleviated to some degree due to their common linkage with community affairs organizations. This implies that community affairs organizations function as a bridge, or linking pin, in the network. At the same time, it must be recognized that it discharges this function only for interactions based on information exchange, resource exchange and board overlaps. When it comes to joint programming, community affairs organizations behave as isolates. This suggests that while the linking activity of organizations in block E helps give the overall network some cohesion, they do not achieve a position of centrality. Consequently, it cannot be inferred that they are able to regulate and control interaction.

Some quantitative support for this conclusion was obtained by computing values which measure the centrality of each block of organizations in the graphs contained in Figure 2, as well as the overall tendency toward centralization for the network as a whole.[18] These scores do not indicate that block E organizations can be regarded as hierarchically dominant in the network.

In summary, the graphs presented in Figure 2 describing the interorganizational service delivery network in Hamilton-Wentworth indicate that no single block of organizations is hierarchically dominant. Rather, when considered in terms of its structure, the network is quite decentralized. However, before concluding that these findings establish that the system is fragmented, it is necessary to explore the basis on which interaction is taking place.

In dealing with the question of the basis of interaction, it is important to recall from above that each block was assigned a "character". Awareness of a block's character, or nature, is an important consideration in judging whether or not linkages in the network are based on similarities or dissimilarities in the functional interests of the organizations comprising the blocks.

To begin, reflection on the research findings discussed above taking into consideration the character of each block of organizations does suggest that, as indicated by the consistent and pervasive occurrence of self-ties (see Figure 2), a good deal of interaction taking place in the network is based on organizational similarity (e.g. generalist service provides interaction amongst themselves, as do generalist and specialist physical planners). At the same time, there is also no evidence of interaction based on organizational dissimilarity or, more precisely, on a complimentarity of respective organizations that discharge different but what appear to be logically related functions.[19] Generalist and specialist physical planning organizations interact consistently, possibly because they discharge mutually dependent tasks (i.e. planning and implementation). Although there is almost no direct interblock interaction between organizations providing direct service (i.e. organizations in blocks A, B and D, or generalist, institutionalized and specialist service providers), these organizations do interact with organizations concerned with interorganizational planning and coordination (i.e. block C organizations). Indeed, examination of Figure 2 indicates that interorganizational planning and coordinating organizations occupy a position of relative centrality with regard to service providing organizations. These observations suggest that coordinative activity is taking place within this particular grouping of organizations, perhaps in the interest of achieving ends which transcent the capabilities of any single grouping.

There is an important qualification to this observation that coordinative activity is taking place amongst service providing organizations. It applies in the case of the occurrence of joint programs. Examination of Figures 2(d) and (h) show that while generalist service providing organizations regard themselves as interacting directly with institutionalized and specialist service providers, as well as with interorganizational planners and coordinators, the converse is not true. This is surprising since in an "objective" sense, joint programs presumably involve reciprocal or two-way ties. As Knoke and Rogers note,[20] various factors may account for a failure to report an existing tie or to claim a non-existent one, including personnel turnover, desire to claim status-giving association, and personal motives for concealing information from outsiders. None of these possible contaminants of the interorganizational measure can be inferred from the pattern of interaction described in Figures 2(d) and (h). Nonetheless this pattern is important datum since it implies that for whatever reason, there is not a shared awareness and/or a common understanding that interaction based on dissimilarity of functional interest is taking place. While this does not necessarily mean that in practise the network is fragmented at the service delivery end, the consequence is likely to be the projection of that image.

Viewing the network as a whole in light of our discussion about the basis of interaction between blocks and within clusters suggests that its structure can be defined as encompassing two distinct, broadly specialized policy spaces[21] - one occupied by organizations concerned with planning and delivering direct services, and the other by organizations concerned with developing and implementing physical planning activities. The complimentary nature of the interaction taking place among the subgroupings of organizations in each policy space would seem to reflect an awareness and acceptance of mutual dependencies and perhaps a certain committment to the exercises of joint responsibility in attaining broader policy goals. Further, there is overlap between the two policy spaces based on common interaction with organizations which, given acceptance of the 'principal of complimentarity', might logically be expected to act as connectors, namely, organizations concerned with overall community improvement and protection (i.e. block E organizations. See Figure 2). Taken together, these findings indicate that at both a between block level and overall, interaction based on heterophily (or dissimilarity) is taking place in the network. Thus it is clearly not possible to infer in any full sense that the network is fragmented. At the same time, it will be recalled that the internal coherence of the network does break down when it comes to the tie of joint programming. Interaction based on homophily (or similarity of functional interest) dominates as reflected in the tendency for similar organizations to interact among themselves and behave as isolates with regard to dissimilar organizations. In addition, the community improvement and protection organizations retreat from their role as connectors, and send out fewer ties than any other subgrouping except the generalist physical planners. Finally, within the policy-space occupied by service providing organizations, the pattern of interaction detected indicates that there is not a shared awareness and/or common understanding that interaction based on heterophily is taking place. In substantive terms, what emerges from this discussion is a picture of network with a fairly cohesive and stable structure which nonetheless retreats (at least overtly) from interaction based on dissimilarity when the requirements of that interaction involve conjoint service delivery action.

SUMMARY AND IMPLICATIONS

The research reported on this article demonstrates how recent methodological and conceptual advances in network analysis can be applied to the study of human service delivery systems. In this regard, an exploratory examination of whether or not an interorganizational service delivery system could be characterized as fragmented was undertaken. A blockmodelling procedure developed by Heil was applied to relational data on a set of thirty-nine human service organizations in Hamilton-Wentworth. It indicated that the network could not be regarded as fragmented in any full sense as it did show some tendency toward stability and internal cohesiveness, particularly with regard to linkages involving information and resource exchange. At the same time, no single block of organizations emerged as consistently hierarchically dominant, implying the absence of internal (to the network) coordinative capacity. Also, when interaction involves a committment to joint action, it is clear from the findings that constituent parts of the network retreat into isolationism and there is not a common awareness and/or interpretation of what is actually happening in the system.

The implications of this research are of two different types. First, there are those suggested by the significance of having demonstrated the applicability of using network concepts and methodology to study issues and problems of particular concern to persons in the human services sector. And second, there are the implications suggested by our substantive research findings themselves. Specifically, in the network studied, there are structural tendencies toward both "differentiation and integration". How is the simultaneous existence of these apparently conflicting tendencies in the same network to be explained, and with what implications?

Dealing first with our substantive finding that the structure of the network studied contains contradictory tendencies - one toward stability and cohesiveness and the other toward separateness and isolationism, one possible explanation can be derived by assuming that the behaviour of human service organizations is constrained in significant respects by their environments, and especially through their relations with other organizations. At the same time, organizational administrators do not willingly give up control over their organizations' activities or environments. Within the constraints set by the environment, they attempt to manage interorganizational transactions and arrangements in ways amenable to the maximization of their own organization's security and autonomy. The strategic implication of this argument is that organizational decision makers rank order preferred interorganizational ties, favouring most those posing the least threat to their organization's autonomy.[22] Because joint programming activities and, to a lesser extent, board overlaps involve the actual penetration of one organization's boundaries by another, or others, they pose a very real and direct threat to an organization's autonomy. Interorganizational information and resource exchange arrangements do not exhibit as strong a threat since they do not involve boundary interpenetration. Consequently it is to be expected that considered individually, and assuming all other things equal, organizations will tend to be more involved in interorganizational information and resource exchange arrangements than in joint programming activities. At the level of the interorganizational network, this will manifest itself (as it does in this research) in a tendency toward differentiation as far as joint action is concerned, but toward integration when it comes to information and resource exchange arrangements.

While support for this argument can be found in existing literature,[23] an alternate interpretation is suggested by those who focus not so much on how organizations act on their environment, but rather, as they are acted on by it. We are referring here to a recently emerged group of organizational theorists who attempt to explain the capacity of a system to retain and maintain its stability in the face of almost continuous environmental change by focusing on the question of whether or not the arrangement of linkages in the system is loosely coupled.[24] Coupling refers to the nature of the connectedness between constituent parts of a system. The degree of coupling between these constituent parts is based on the activity of their common variables. If the constituent parts of a system have few variables in common, or if variables common to each part are weak compared to the influence of other variables, the coupling is imperfect. The looseness facilitates the maintenance of system stability since when confronted with change, action by the entire system is less probable than action by a component subsystem. As Aldrich points out, "(In) loosely coupled systems it is more difficult for changes in individual elements or units to affect the entire system than in tightly coupled systems. External events therefore do not ramify throughout the entire system, and subcomponents can achieve their own adaptation with local subenvironments."[25]

The concept of loose coupling establishes a basis for understanding the substantive findings of this research. Most writers and practitioners agree that when viewed particularly from the service delivery end, the environments of urban-based human service delivery systems are complex, changing environments. New needs are continuously being recognized. Numerous problems are presented by many different types of clients under a variety of conditions and circumstances. And changes occur in community values, expectations and in populations served. The structural tendency toward separate rather than conjoint direct service delivery action noted in the human service delivery system studied in this research is to be expected since it prevents system-wide instability induced by responses to changing needs and problems and other short-term environmental fluctuations. Because of their relatively autonomous status, subcomponents of the system can contend with and adapt to local problems and events without generating immediate, unsettling implications for the whole system. This would not be possible if the system's subcomponents were tightly coupled in the sense that all were extensively involved in joint programming activity.

At the same time, it should be remembered that the system under study is a mature system, with the organizations comprising it showing an average age of just over thirty-six years. This means they are likely to be visible to each other and aware of their interdependencies. These conditions when combined with other environmental pressures are sufficient to produce interorganizational activity (i.e. information and resource exchange arrangements) which give the system an overall cohesiveness, albeit not a cohesiveness which is hierarchically regulated and enforced.

It is of course not possible here to determine which of these two interpretations of the substantive findings of this research is the most valid. What is clear however is that the two interpretations are predicated on different models of organizations. The first interpretation views organizations as purposive actors which seek to determine their own direction and outcome by managing their environments. The second portrays organizations as essentially functionally dependent actors which conform to conditions and requirements imposed by their environments. Intuitively it seems that neither conception of organizations can be either totally correct or totally incorrect. Rather it is quite reasonable to presume that organizational and interorganizational behaviour can best be understood if organizations are analyzed as both aggressive and passive vis-a-vis their environments. They may very well try to control their environments in the interests of establishing and preserving their autonomy. At the same time, organizations cannot move blind in their environments. For example, they must acquire resources to survive. This may very well establish them as dependent and, of necessity, adaptive vis-a-vis environmental demands and requirements. The implication which follows is that if we are to develop a comprehensive understanding of how, why, and with what implication, human service delivery systems are structured, more research is needed. Moreover, this research should incorporate into its design the comparative study of human service delivery systems located in different communities. In implementing this research, care should be taken to collect data for use in measuring organizational, interactional and environmental variables. The general purpose of analysis using this data would be to disaggregate the variance describing the extent to which the structure of a system is due to environmental influence, and the extent to which it is due to intra-organizational structures and processes.

Turning now to the implications of using network concepts and methodology to study problems in the human services sector, I shall confine ourselves to one general observation. Human service organizations are now most frequently viewed as constituent parts of a complex service delivery system. Roughly, this can be taken to mean that they are part of a fairly large grouping of functionally similar organizations that interact in nonsimple ways.[26] In such systems, the whole is accepted as being more than the sum of its parts. Consequently, systemic attributes and conditions are regarded as having implications for understanding both the behaviour of individual organizations and overall system's performance.

To the present, this model of the nature of human service delivery activity has really not moved beyond the metaphorical stage since it has not had attached to it frameworks and methods of analysis capable of contending empirically with prescribed and emergent structures and processes. For example, one reads of the need for coordinated systems of service delivery without at the same time being given a sense of how such systems are currently structured, why, how the systems' structures and processes are to be changed by the proposed interventions, and what the indicators of overall changed systems' performances will be. Based on the results of the research reported in this article, it is our contention that this can now be changed. The network perspective provides concepts that have developed to the point of suggesting approaches to data collection for the measurement of organizational as well as system-level attributes and conditions. With current methods, these data can be organized and examined to define significant system-level structures and processes. Moreover, and as illustrated in this research, it is possible to conduct analysis by moving back and forth from the micro (i.e. organizational) - to the macro (system - level. This means that it is possible to deal with inevitable complexity of an urban-based human service delivery system without sustaining such a degree of information loss as to make the analysis meaningless.[27] This is not to say that hurdles will not have to be confronted and overcome, as any reading of the network literature will reveal. Nonetheless, network analysis is an emerging paradigm[28] and those concerned with studying or managing human service delivery activity should consider it not simply as an alternate prescription for action (i.e. "let's solve problems by networking") but as a way of developing an understanding of how and why systems operate as they do.

In closing, I would like to make three observations. Firstly, in this paper, we derived a single blockmodel in an attempt to answer a particular question about a human service delivery system. Informative as this has been, it remains that no one blockmodel adequately fits a realistic data set. If the structure of a system as it exists in the "real world" is to be fully defined, multiple blockings are necessary. Although the computer algorithm designed for and used in this research is capable of discharging this task, it was not completed. Thus, while we have attempted to answer a question about the structure of the system, we have not fully defined the structure of that system. Secondly, the reader is reminded that the study is exploratory and that the findings are limited to a single network in a particular urban area. Although we derived general theoretical interpretations of these findings, these interpretations need to be tested in other research using a comparative design.

Finally, the frame of reference established for the development of this paper suggested that following from analysis should be a prescription for action - the specification of what kind of structure would reduce fragmentation and thus enhance overall system efficiency. I have not discharged this task for the following reason:.[29] although currently we have no general theory useful in explaining the evolution and operation of interorganizational networks at a macro-level, it is nonetheless my view that interorganizational networks such as the one studied in this paper can be conceived as a political economy. Accordingly, analysis of behaviour must be in terms of the activities undertaken by organization participants in pursuit of an adequate supply of organizational resources (i.e. money and authority).[30] In relation to this, it is important to recognize that the interorganizational network itself does not exist in isolation. It is linked to a larger environment, comprised in this case of Federal and Provincial Governments, numerous government departments, other authorities and a variety of publics. The flow of resources into a local network depends upon developments in this larger environment. Or. put another way, while the structure and operation of local-level interorganizational service delivery networks is no doubt influenced by factors internal to it (see my earlier interpretations), it is more fundamentally influenced by factors external to it. Yet, to my knowledge, research has not been undertaken which enables us to model the influence of this factor on local-level interorganizational networks. This suggests to me the question: "Do we know enough about how systems are structured and operate to introduce change that will result in important improvements?" At present, it is my view that we don't.

NOTES

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1. Howard E. Aldrich and Jeffrey Pfeffer, "Environments of Organizations." In *The Annual Review of Sociology* Vol. 2; ed. A. Inkeles (PaltoAlta, Calif.: Annual Reviews, Inc. 1976), p.70.

2. Richard H. Hall and John P. Clark, "Problems in the Study of Interorganizational Relations." In *Interorganization Theory*, ed. Anant R. Negandhi (Kent.Ohio: Kent State University Press, 1975), p.112.

3. For elaboration see Martin Rein, *Social Policy: Issues of Choice and Change* (New York: Random House, 1970), pp.103-137; and Neil Gilbert, "Assessing Service Delivery Methods: Some Unsettled Questions." *Welfare in Review* 10(1972): 25-33

4. For a recent review of the IOR literature, see David J. Tucker and Anne E. Vaughan, "Coordination in the Social Services Sector: The Facts of Life." *Canadian Journal of Social Work Education* 8(1982): 5-29.

5. David Knoke and David L. Rogers, "A Blockmodel Analysis of Interorganizational Networks." *Sociology and Social Research* 64(1978): p.129. Little progress has been made since Knoke and Rogers wrote their paper. For an exception, see Andrew H. Van de Ven and Gordon Walker, "Coordination Patterns within an Interorganizational Network." *Human Relations* 32(1979): 19-36.

6. Ibid; and Barry Wellman, *A Guide to Network Analysis* (Toronto: Structural Analysis Programme, Department of Sociology, University of Toronto, 1980), p.18.

7. Edward O. Laumann, Joseph Galaskiewicz, and Peter V. Marsden, "Community Structure as Interorganizational Linkages." In *Annual Review of Sociology*, Vol.4, eds. Ralph H. Turner, James Coleman, and Renee C. Fox (Palto Alta, Calif.: Annual Reviews, Inc., 1978), p.459.

8. Ibid; p.459.

9. Ibid; p.597.

10. Edward O. Laumann, Peter V. Marsden, and Joseph Galaskiewicz, "Community-Elite Influence Structure: Extension of a Network Approach." *American Journal of Sociology* 83(1977): 596.

11. Ibid; p.597.

12. Lauman, Galaskiewicz and Marsden, p.468.

13. A similar position is developed by Amos Hawley, *Human Ecology* (New York: The Ronald Press Co., 1950), ch.12; and by James R. Lincoln, "Organizational Dominance and Community Structure." In *Power, Paradigm and Community Research*, eds. Roland J. Liebert and Allen W. Immersheim (Beveraley Hills, Calif.: Sage, 1977), pp.19-50.

14. Laumann, Marsden, and Galaskiewicz, p. 606, present a similar position.

15. Susan Goodman, The Relationship between Physical and Social Planning in the Region of Hamilton-Wentworth: An Interactional Analysis (Master's Research, McMaster University, 1980).

16. For a comprehensive discussion of blockmodelling, see Phipps Arabie, Scott A. Boorman and Paul R. Levitt, "Constructing Blockmodels: How and Why." Journal of Mathematical Psychology 17(1978): 21-63. A more technical discussion is available from the author on request.

17. The algorithm is identified as REBLOC. It was modelled on an earlier algorithm referred to as COBLOC. For discussion see Peter J. Carrington and Gregory Heil, "COBLOC: A Hierarchical Method for Blocking Network Data". Journal of Mathematical Sociology 8(1981): 21-63.

18. The details of the analysis are available from the author on request. For a general discussion of the approach used, see Linton C. Freeman, "Centrality in Social Networks: Conceptual Clarification". Social Networks 1(1978/79): 215-239.

19. Laumann, Galeskiewicz and Marsden, pp. 461-62.

20. Knoke and Rogers, p. 141.

21. Anthony Downs, Inside Bureaucracy (Boston: Little, Brown and Co., 1966), p. 212.

22. For elaboration, see Howard E. Aldrich, Organizations and Environments (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1979), ch.12.

23. For example, see David J. Tucker, "Senior Management and the Coordination of Services." Social Work Research and Abstract 16 (1980): 11-18; and Voluntary Auspices and the Behaviour of Social Service Organizations." Social Service Review 55(1981): 603-627.

24. See Aldrich, Organizations and Environments, ch.4, and particularly Karl E. Weick, "Educational Organizations as Loosely Coupled Systems." Administrative Science Quarterly 21(1976): 1-19. For a generic discussion of the concept of loose coupling, see Robert Glassman, "Persistence and Loose Coupling." Behavioural Science 18 (1973): 83-98.

25. Aldrich, Organizations and Environments, p.77.

26. Herbert A. Simon, "The Architectur of Complexity." General Systems x (1965), p.63.

27. Ibid. Also Weick, op. cit.

28. Wellman op. cit.

29. For a review of various prescriptions for action, see David J. Tucker, "Coordination in the Social Services: The Facts of Life." Canadian Journal of Social Work Education 8(1982): 5-29, particularly p. 23.

30. For a more comprehensive discussion, see J. Kenneth Benson, "The Interorganizational Networks as a Political Economy." Administrative Science Quarterly 20(1975): 229-249.

FIGURE 1

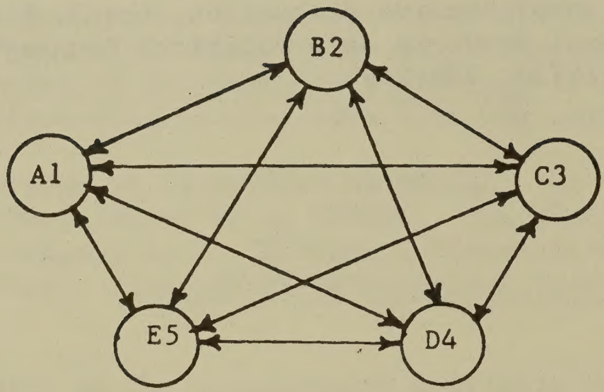

B2
A1
C3
E5
D4

TABLE 1

NUMBER, DESCRIPTOR, AND AUSPICES OF HUMAN SERVICE ORGANIZATION IN THE STUDY POPULATION

(N= 39)

ORGANIZATION NUMBER AND DESCRIPTOR	AUSPICES
1. Child Welfare	Quasi-Public
2. Information and Referral	Voluntary
3. Community Planning and Traffic Control	Public
4. Businessmen's Community Improvement Association	Voluntary
5. Services for the Mentally Retarded	Voluntary
6. Health Planning and Coordination	Quasi-Public
7. Public Housing	Public
8. Police	Public
9. Transportation Planning and Management	Public
10. Personal Social Services for Ethnic Minorities	Voluntary
11. Legal Services for the Economically Disadvantaged	Voluntary
12. Social Planning and Research	Voluntary
13. Transportation Planning and Support	Public
14. Personal Social Services for Physically Handicapped	Voluntary
15. Employment Services for Hard-to-employ	Voluntary
16. YWCA	Voluntary
17. Engineering Services	Public
18. Alcohol and Drug Dependency Services	Public
19. Income Maintenance and Personal Social Services	Public
20. Services for Immigrants	Voluntary
21. Highway Planning	Public
22. School Board	Public
23. Recreation Services*	Public
24. Physical Planning and Development	Public
25. Community Nursing Service	Voluntary
26. Child Welfare	Quasi-Public
27. Land Use Planning	Public

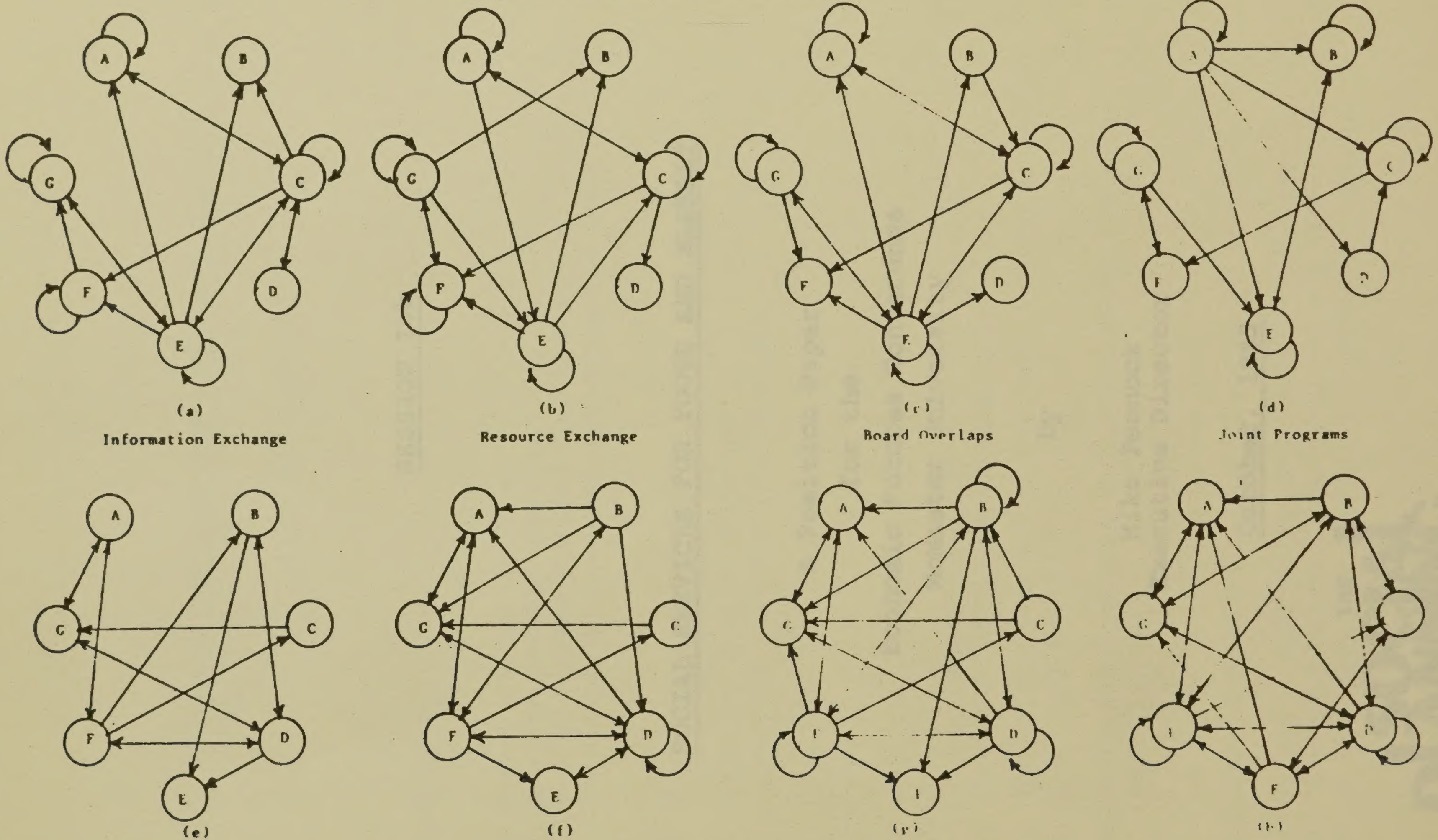
TABLE 1 (cont'd)

ORGANIZATION NUMBER AND DESCRIPTOR	AUSPICES
28. School Board*	Public
29. Child Welfare*	Voluntary
30. Highway and Sanitation Services	Public
31. Personal Social Services	Voluntary
32. Engineering and Planning Services*	Public
33. School Board	Public
34. Transportation for Physically Handicapped	Voluntary
35. YMCA*	Voluntary
36. Personal Social Services	Voluntary
37. Public Health	Public
38. United Way*	Voluntary
39. Urban Planning	Public

* A nonparticipating organization

FIGURE 2

GRAPHIC REPRESENTATION OF IMAGE MATRICES



(a) (e) Information Exchange

(b) (f) Resource Exchange

(c) (g) Board Overlaps

(d) (h) Joint Programs

SESSION IVb

SOCIAL SERVICES FOR YOUTH AND ELDERLY

A Position Paper
for the
Economic Futures Conference
McMaster University

by

Mike Pennock
Executive Director

October, 1983

THE SOCIAL PLANNING and RESEARCH COUNCIL
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SOCIAL SERVICES FOR YOUTH AND ELDERLY

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*This paper has been written for discussion purposes.

The opinions expressed represent those of the author and do not necessarily reflect those of the Board of Directors of the Social Planning and Research Council of Hamilton and District.

I. INTRODUCTION

As a society, we have never been particularly good at dispensing our misery in equal doses. Whenever our economy goes into a recession, the impact of that recession falls more heavily upon some groups than upon others. When the recession is as deep and as long lasting as that of the present, the outlook for these sensitive groups is particularly bleak.

The young and the unskilled have traditionally been hardest hit by economic recessions and the current situation is no exception. Our present malaise, however, has created another group - the older worker, who finds his or her skills increasingly redundant in a rapidly changing economy.

Recessions have been a fact of economic life throughout the history of industrial economies. Every fifty years or so, however, a recession takes on a particularly severe dimension as the economic structure of a country undergoes a pronounced shift. As a part of this shift, new jobs requiring new skills are created and old jobs requiring older skills are made redundant. The casualties of such a shift are, of course, the older workers in the redundant jobs.

Economists tend to differentiate between three types of unemployment and this differentiation is important in clarifying the problems faced by the two groups identified above - the young worker attempting to enter the labour force and the older worker faced with job redundancy. Demand-deficiency unemployment is the traditional recessionary unemployment insofar as it occurs when employers are forced to lay off workers in the face of reduced demand for their products. The reduced demand may result from an over supply of goods or an actual decrease in demand due to income reductions or high interest rates. Structural unemployment, by contrast, occurs as a result of shifts in the demand for labour and the resulting redundancy or over-supply of some skills. The third type of unemployment, which is called frictional, is largely irrelevant to this paper, insofar as it refers to the type of unemployment which results from increased job changes among workers during "boom" periods.

In reviewing the problems faced by these groups, this paper will argue that the unemployment problems of the younger worker are primarily "demand deficiency" in nature, while the older worker faces severe structural unemployment problems. These problems are particularly acute in the Western Ontario Growth Corridor because of the nature of our local economy. Further, this paper will argue that there is no "quick fix" for the problems we face but rather a number of smaller measures which could be taken to ease the plight of these two groups. Finally, the paper will suggest that we, as a society, are faced with an important moral challenge in dealing with this relatively unique situation.

II. THE NATURE OF THE PROBLEM

A. The Statistical Profile:

During 1982, in Canada, males and females aged 17 to 19 had the dubious distinction of having the highest unemployment rate in the country. Over a quarter of the males and a fifth of the females in this age group were unemployed. Twenty to twenty-four year olds were only slightly better off than their younger cohorts. (Table 1). Ontario rates were slightly lower than the national rates but almost 20% of both sexes aged 15-19 were without a job.

The rate for older workers was considerably lower at 7 and 6.5% for males and females respectively. This, however, still represents a significant increase from the more traditional levels of 3 to 4 percent for this age group.

Within both groups, single males were the hardest hit, followed by married females.

Comparative figures are, unfortunately, not available for our particular geographical area. We do know that during the recession, our unemployment rate rose from its traditional place below the national average to exceed that of the country as a whole. To a considerable extent, this was due to our dependence upon the recession-sensitive heavy industrial sectors. Generally speaking, this dependence caused us to enter the recession earlier, to go in deeper and to stay in longer.

There are, however, no specific figures available pertaining to local unemployment rates among the two age groups which are addressed in this paper. It is probably safe to assume that our rates among these groups exceed the national rates, given our higher than average overall rate. This is particularly true of the older worker who has found his or her skills to be redundant because of structural changes. The local economy, again because of our dependence upon heavy manufacturing, is particularly vulnerable to these structural shifts.

In summary, then, during 1982, over half a million young Canadians, between the ages of fifteen and twenty-four were unable to find work. A further 78,000 older workers (55-64) found themselves without jobs. These two groups represented 49% of our unemployed, despite the fact that they represent only 36% of our population. In terms of sheer numbers, the young workers were the hardest hit with rates approaching 25% in some groupings.

Corresponding figures are not available for our local area but, given our high rate of overall unemployment and the nature of our labour force, the magnitude of our problems probably exceed those of the national average.

No profile of unemployment is complete without reference to the problem of "discontented workers" - those who have withdrawn from the labour force because of a perceived futility in searching for work. Within the monthly labour force survey, Statistics Canada identifies the number of persons who are not in the labour force because they believe there is no work available. These results, for the country as a whole, are presented in Table II.

Among the 15-24 group, 29,000 or 28% of non-participants in 1979 were out of the labour force for this reason during the reference week studied. By 1983, the number had increased to 59,000 or 37% of non-participants in the labour force.

Among the older group (45+), the number increased from 21,000 to 59,000 or 32% of non-participants to 52%.

The discouraged worker effect, which is present in all age groups appears to be much stronger, then, in the older group. Among this group, the effect is particularly pronounced among females, where 58% of non-participants believed that no work was available.

B. The Young Workers and the Recession:

Demographically, the young workers who are now facing 20 percent-plus unemployment, are the latter half of the baby-boom which sent birthrates skyrocketing during the fifties and early sixties. Birthrates rose dramatically between 1946 and 1957 before falling back to more traditional levels by 1965. The present group of 15 to 24 year olds were born between 1959 and 1968 while birthrates were still high but falling from their 1957 peak.

This explosion in birthrates has created a "big generation" of Canadians, as described by futurist John Kettle. As this big generation began leaving high school, college and university to enter the labour force, terrific pressures were exerted upon the employment market to absorb this influx of labour force entrants. The impact of this "tidal wave" upon the employment market was further increased by the rapid rise in labour force participation among females in this baby-boom generation.

These two factors combined to give Canada the fastest growing labour force of all the Western industrial nations during the sixties and seventies (Table III). Fortunately, we also had the fastest rate of employment growth - thus unemployment, although rising, was held in check. Then in 1981, our employment growth came to an abrupt halt and in 1982, employment actually fell. It fell a staggering 12% among the 15-24 group. Those who were newly hired were the first to be laid off and those who were attempting to just enter the labour force, encountered very few want-ads.

One of the major sources of the exorbitant unemployment among the young, then, is demographic in nature - the sheer size of their generation was flooding the labour market. They could be absorbed only so long as the economy continued to expand at full tilt. Any dip in the business cycle was bound to have traumatic results, given these demographic pressures upon the labour market.

Unfortunately, an economy moving at full tilt is also prone to inflation and when the decision was made to fight inflation and high interest rates were invoked to slow the rate of expansion, the "dip" in the business cycle became a "slide" and unemployment, particularly among the young, skyrocketed.

Most forecasters are projecting a continuing high rate of unemployment during the first few post-recovery years because labour force growth will continue to exceed employment growth in the post-recovery economy of the eighties. It is the tail-end of the baby-boom generation who will bear the brunt of this problem. Their older brothers and sisters, born between 1946 and 1958, are more firmly entrenched in the labour force because of their greater number of years of employment. They entered the labour market during the growth years of the seventies and have enough seniority behind them to avoid some of the layoffs. As an age cohort, they experienced an unemployment rate of 9% in 1982, as compared to the 19% experienced by their younger siblings.

These young workers, then, have been the victims of two factors which have combined to create an unemployment rate in excess of 20%. Firstly, they are victims of their own birthdates. They are the tail end of a big generation which has flooded the labour force during the past decade. Secondly, they are the victims of a policy-induced recession which has diminished the size of the employment market just as they were attempting to enter.

As suggested earlier in this paper, these problems are particularly acute in the local area, given our dependence upon heavy manufacturing.

C. The Older Workers and Structural Change:

The older workers' problems tend to come from another source - the structural change occurring in the labour force which is leaving some skills in a low demand situation. These structural changes occur on a continual basis as industrial sectors adapt to changing demand and new technologies. It is this change that has been at the root of the long held fear of automation on the factory floor. Such changes have led to a continually decreasing demand for unskilled labour since the beginning of the century.

During the present time, however, the effects of these structural changes upon employment have been more pronounced because of a number of interacting trends.

Firstly, the recession has tended to accelerate the effects of the structural change. Companies, for a variety of reasons, are apt to retain "redundant" workers as they deal with their own structural changes through retirements and regular labour flow activity. During a recession, however, redundant workers tend to be laid off and are less apt to be recalled. Consequently, a change which usually occurs over the course of years, suddenly occurs in a matter of months and the effect of the change is considerably more pronounced, as a result.

Secondly, we are presently in the midst of a significant geographical shift in industrial capacity. During the past twenty years, for example, the steel industries of the Far East have grown at a rapid rate and now represent serious competition to the steel industries of North America. Given their traditionally low wages, their labour costs tend to be far below those of Canada and, as a result, our own steel industries are attempting to increase their productivity at a substantial rate. Canadian steel industries have been more successful than their counterparts in the U.S. in this regard, but this success has undoubtedly been accomplished with a cost in employment.

Such changes are not unique to the steel industry, but are, in fact, at work in all multi-national sectors.

Thirdly, the rapid developments in micro-electronics and computer technologies during the past decades, have now interjected a considerable component of structural change into the previously immune sector of white collar employment.

Fourthly, our present rate of structural change appears to have been accelerated as a result of the actions of a recurring "long wave" in economic development. According to this theory, industrial economies tend to slip into a deep and prolonged recession every fifty years or so as a result of an acceleration of technological change and shifting demand. These waves were first identified by a Russian economist named Kondratieff during the twenties and have re-emerged more recently in the works of such global forecasters as Jay Forrester.

During these pronounced recessions, according to present theories, the economy undergoes a massive structural change. Old sectors have reached a saturation point in terms of supply and demand, while new sectors emerge and grow to lead the economy into another phase of growth and expansion. While this change is occurring, the demand for skills also undergoes a pronounced shift as the skills required by "older" industries become increasingly redundant.

The last time a shift of the present magnitude occurred was fifty years ago, during the Great Depression. In retrospect, the thirties represented a major watershed in the development of the Canadian economy. One fifty-year wave of development had ended and a new one had yet to commence.

The previous wave, which ended in the crash of 1929, had been based upon the opening of the west as an agricultural power, the building of the railway and the development of automobiles. The demand for steel and manufactured goods was high and the industries of the Hamilton area grew rapidly. This was, in fact, the most rapid period of growth in Hamilton's history.

This wave of growth and expansion, however, had largely expended itself by the mid-twenties. Markets were saturated and money was tight as interest rates began to climb. Finally, the economy stalled in 1929 and we spent ten years languishing in a depression.

It should be noted, at this point, that one of the most important differences between the depression of the thirties and the situation of today, is that of the devastating effects of the drought which occurred between 1931 and 1940. The catastrophic consequences of this natural disaster pulled a recession economy into the depths of one of the worst depressions in recorded history.

With the exception of the drought, however, the dynamics of the Great Depression were very similar to those of to-day's recession - a drastic reduction in business activity and rapid structural change. Concerning the latter, for example, a 1932 McLeans article quoted Dr. Howard Scott of Columbia University - "Technological improvements have come with such rapidity in the last three years that only 55% of workers thrown out of employment by the current depression could be re-employed if industry resumed operations at the 1929 peak of production".

Concerning the problems of the young, a 1933 article in the same magazine, quoted Dr. R.C. Wallace, President of the University of Alberta - "One of the most depressing situations in connection with the economic difficulties of the present time is that young men and women...find it extremely difficult to obtain employment. It is a tragedy when men and women at that stage of life have their hopes broken and their dreams shattered".

The similarities between these quotes and those which appear in the media of today, serve to illustrate the similarities between our present problems and those of the thirties. Consequently, the events of the depression and the subsequent recovery may hold some lessons concerning the problems of today.

It was, of course, the war which pulled our economy out of the depression of the thirties. Thousands of unemployed young men joined the military and orders began pouring into the steel mills, the mines and almost all of the sectors of our industrial economy. There was, however, a very real concern among our national planners that the end of the war would bring a return of the depression.

The post 1946 economy, however, remained generally buoyant as a result of the expression of the repressed demand of the war years. The rebuilding of Europe required Canadian exports and the domestic market was enlivened by the pent-up demand for housing, cars and appliances by the returning veterans. The baby-boom, urbanization, rapid population growth, the automobile, oil, and the development of newer industries such as plastics and electronics, all interacted to lead our national economy into another wave of growth during the fifties, sixties and seventies.

The fears of a post-war depression, therefore, proved unwarranted, as did Dr. Scott's prognosis of the disastrous effects of technological change. Now, however, the post-war wave appears to have expended itself. Europe has been rebuilt, population growth has slowed, the urban infrastructure is nearly complete and overseas competition is threatening the automobile industry.

The Western Ontario Growth Corridor was a major recipient of this post-war prosperity. Most of the growth sectors were large consumers of steel and the products of our heavy manufacturing sector were in demand.

During the heyday of this wave, however, the economy began to undergo a significant structural shift from an industrial economy to a serviced based post-industrial complex. In 1957, the size of the manufacturing sector as a component of our gross national product peaked and, within ten years, employment in the service sector surpassed that of the manufacturing sector. Our national economy began to diversify rapidly and, it is at this point, that the economic wave began to leave the Hamilton-Wentworth area behind.

The rate of diversification in the Hamilton-Wentworth area was much slower than elsewhere. The growth rate of our service sector lagged and we remained a manufacturing based economic region. We were, therefore, very vulnerable to the recession of 1982 which affected the manufacturing sector to a far greater degree than the service sector.

The next wave of economic development is expected to be led by such high technology industries as micro-electronics, bio-medical engineering and environmental technology. The effects of this coming wave upon the Western Ontario Growth Corridor remains to be seen. In the meantime, however, we are faced with the significant problems of unemployment among those workers who are displaced by the course of this change.

III. THE ROLE OF SOCIAL SERVICES

The present social service system is largely a product of the values and circumstances of the post-war era. It, therefore, tends to reflect the prevailing attitudes of that prosperous period. Principal among these attitudes was the belief that the economy could be "managed" through the manipulation of Keynesian principles. Prolonged high levels of unemployment, therefore, were judged to be a thing of the past. If unemployment did rise, it was expected to be a short-lived temporary phenomenon.

Intrinsic within this attitude, was the idea that there must be something "wrong" with the unemployed person if they remained unemployed for very long. Services of a rehabilitative nature were, therefore, developed to change the characteristics of the unemployed person in terms of education and attitudes.

The possibility of prolonged unemployment for reasons of demography and economic change is a new situation. We now face this possibility not because of the characteristics of the unemployed, but because of the characteristics of the world in which they live. If this somewhat gloomy scenario is accurate, then the emphasis in services needs to change from rehabilitation to helping the person cope with their state of unemployment.

Insofar as the nature of the programs within the social service system tends to reflect the point of view of prosperity, the ability of these services to deal with a prolonged period of unemployment is debatable. In examining this question, the remainder of this paper will review the implications for the younger and older workers and examine impacts upon the three major sectors of our service system - income maintenance, personal social services and community development.

A. Income Maintenance Programs and Pension Issues:

The design of our present income maintenance system was based on the belief that unemployment would be of a relatively short duration. Unemployment insurance benefits last for twelve months and the general welfare system was designed to provide short-term emergency assistance. The benefits of the latter system are too low to provide an ongoing income for either singles or families.

Longer term support programs have been implemented for such special groups as the disabled and the single parents, but those programs are not relevant to the majority of the unemployed.

If the prospect of prolonged unemployment does appear to be a likely scenario, then a reasonable guaranteed income program, with increased benefits, would appear to be a necessity.

The income problems of the older worker have the added dimension of pension entitlements. This group have lost their jobs at the point where they were approaching maximum contribution levels to their pension plans. The loss of these contributions, through unemployment, will have two severe impacts. Firstly, the plans will suffer in terms of reduced contributions at a point in time when their expenditures are rising due to the rapid number of retirements during the mid to late 1980's. Secondly, the potential entitlements of the unemployed worker will be reduced substantially due to their unemployed status during their critical years just prior to retirement.

Unemployment among the older workers, then, not only reduces their present income, but can have a devastating effect upon their future pension incomes. Their depleted pensions will require significant supplements to raise their income to a reasonable level through the Guaranteed Annual Income program for seniors (GAINS).

B. Personal Social Services:

The prevailing literature on the subject, although sparse, suggests the following scenario -

1) The initial impact is on the material needs of the unemployed persons. The agencies which directly provide food and shelter are, therefore, the first sector to experience an increased demand for service. This occurs during the first year of high unemployment and we now appear to be in this phase in Hamilton-Wentworth.

The young, in turn, are the first to use this service because they tend to have fewer financial reserves. The older workers tend to have more reserves to fall back on and, in many cases, their children have left home and the "number of mouths to feed" has diminished.

2) The impact upon non-material services occurs two to three years after unemployment has risen and tends to be felt in the inpatient, mental health sector. This impact is particularly pronounced among older workers. The fact that

the impact is felt upon inpatient rather than outpatient services, suggests that the unemployed person tends to delay help-seeking until the problem has reached such a severe level that inpatient treatment is required.

3) Impacts elsewhere in the system tend to follow a model of stress-induced reactions. That is, persons faced with prolonged periods of high stress tend to react with symptoms of either aggression or withdrawal. The former leads to such problems as wife or child abuse, while the latter can lead to depression or suicide. These impacts tend to be expressed in the mandatory protective service sector - i.e. Children's Aid Societies. Given these general results from the literature, the most likely scenario for the effects of a prolonged period of unemployment in the Hamilton-Wentworth area, is as follows -

1982 - major rise in unemployment;

1983 - rapid increase in demand upon the material assistance sector, particularly by young persons. Minimal to moderate impact upon other sectors. Older group tending to rely upon UIC and savings with growing need for credit counselling;

1984 - growing impact upon inpatient mental health services and protective services by both younger and older workers. High demand for credit counselling, particularly among older group;

1985 - peak impact upon inpatient and protective services. Growing impact upon outpatient and counselling services for discharged inpatients.

The ability of agencies to meet the projected increases in demand is tenuous insofar as most service sectors are already operating at capacity. Solutions to this problem could be found in a combined strategy of increased funding and the enhancement of selective care modalities such as self-help groups.

In summary, the effects of prolonged unemployment upon the personal social service needs of the younger and older worker tend to ripple through the system in a temporal manner. Two major problems are suggested -

1) Capacity of agencies to meet existing demand.

2) The apparent delay in help-seeking by the unemployed persons until problems have reached a severe stage. A higher utilization of outpatient and counselling services, earlier in the temporal sequence, could prevent the development of severe problems and the corresponding need for inpatient and protective services.

C) Community Development Services:

Community development services tend to be ignored in discussions of unemployment and this omission is unfortunate. Such services can play a crucial role, particularly among the young in terms of channelling the frustrations and angers of young persons who have been precluded from meaningful work. The feelings of helplessness that arise from such a state, can be the most devastating and long lasting of all the psychological impacts.

During the crucial stage of identity formation which is the hallmark of young adulthood, it is critical that the individual develop a sense of some control over their destiny. Few factors can be more destructive at this stage than the helplessness of prolonged unemployment.

Community development services can play a critical role in assisting the unemployed in organizing themselves for political, economic and social action. Successful examples of these initiatives include political lobbying groups, self help groups, recreational social groups and co-ops. All of these activities serve the primary purpose of demonstrating that the unemployed person can take action, on their own behalf, to mitigate the effects of their joblessness.

IV. CONCLUSIONS

1) Given the causal factors which underly the present high rates of unemployment among our younger and older workers, we appear to be faced with the prospects of a prolonged period of unusually high unemployment. These causal factors include elements of demography, government policy and basic dimensions of economic change.

2) Our present service system was designed during a period when prolonged unemployment was viewed as an unlikely scenario. As a result, important changes are required if we are to meet the basic needs of our unemployed younger and older workers.

3) Income maintenance programs need to be revised within the general format of a guaranteed income with increased benefit levels.

4) Pension supplements will need to be increased.

5) Personal social services will need to expand and adopt new modalities. A change in orientation from employment rehabilitation to an enhancement of coping skills will be required.

6) Community development services could play a crucial role in helping unemployed persons express their inevitable frustration in productive ways.

7) All of this will, of course, cost more money and this is the cost that must be borne by those of us who still have jobs. It is at this point, that the problem of unemployment ceases to be an economic or social problem but becomes a

moral problem. Unfortunately, we are loathe to discuss it within this context but such a discussion is imperative. As long as we assume that it is an economic problem with economic solutions, then we will fail to address the issue effectively.

The fact that we do not have enough jobs to go around may be an economic issue but the choice of how we, as a society, should respond, is a question of morality. Until the time comes when we are able to deal with the issue on this level, we will continue to act like ostriches with our heads comfortably planted in the sand.

V. TABLES

TABLE I

Unemployment Rates by Age and Marital Status

1982 Annual Averages

Canada	Age	Both Sexes %	Males %	Females %
	15-16	18.1	19.2	16.9
	17-19	23.1	26.3	19.6
	20-24	16.9	19.0	14.3
	25-44	9.3	9.1	9.7
	45-54	7.0	6.7	7.4
	55-64	6.9	7.0	6.5

Ontario	Age	Both Sexes
	15-19	19.6
	20-24	15.4
	25-44	8.1
	45-54	6.5
	55-64	6.2

		15-24	45-64
Canada	Single Males	22.5	10.2
	Single Females	15.9	5.7
	Married Males	15.4	6.2
	Married Females	16.0	6.7

Source: Statistics Canada, Labour Force Survey, January, 1983.

TABLE II

Reasons for not Seeking Work

Canada, March 1979 and March 1983

	15-24		45 and over	
	1979	1983	1979	1983
Both Sexes				
Believe no work is available	27.8	37.1	31.8	52.2
Awaiting replies	15.3	13.2	10.6	7.1
Awaiting recall	14.4	15.7	18.2	18.5
Males				
Believe no work is available	24.1	36.7	36.1	46.4
Awaiting replies	17.2	15.0	11.1	8.9
Awaiting recall	18.9	20.6	22.2	26.7
Females				
Believe no work is available	30.4	37.5	27.6	57.8
Awaiting replies	10.8	11.1	--	--
Awaiting recall	10.8	11.1	13.8	10.8

Source: Statistics Canada, Labour Force Survey, April, 1983

TABLE III

PERCENTAGE GROWTH IN LABOUR FORCE 1960-75 and 1975-90

	Actual 1960-75 Experience	Projected for 1975-90
Australia	45.4	34.0
Austria	-11.3	14.2
Belgium	8.9	11.7
Canada	55.3	32.7
Denmark	18.7	12.1
Finland	7.0	6.4
France	12.7	14.0
Germany	-0.5	4.9(b)
Greece	-10.3	13.5
Iceland	36.8	26.9
Ireland	2.0	16.3
Italy	-6.4	7.3
Japan	17.1	12.9
Luxembourg	10.8	1.4
Netherlands	19.8	17.6
New Zealand	37.9	26.3
Norway	19.9	15.3
Portugal	18.8	23.5
Spain	13.5	19.8
Sweden	12.8	11.6
Switzerland	8.6	8.7
Turkey	24.9	53.5
United Kingdom	5.3	9.3
United States	31.4	28.1
Yugoslavia	10.2	5.7
Total(a)	16.4	19.3

a) Equivalent to weighted average
b) Projected growth of the German labour force is 2.1 per cent

Source: Demographic Trends 1950-1990, Organisation for Economic Co-operation and Development, Paris, 1979.

SESSION IVc

SPECIAL NEEDS: SOCIAL SERVICES FOR THE DISADVANTAGED

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The Canadian welfare state has been undergoing significant changes since the 1960s. The current economic downturn has only aggravated difficulties and problems which were already evident before the recession. For instance, the move toward the deinstitutionalization of psychiatric patients led to a closure of hospital beds which was begun (in Ontario) in the mid-60s and was essentially completed by the mid-70s. This so-called "deinstitutionalization" phenomenon has affected many social service sectors. The problem that we are now facing is that the growing community-based social service system may be strangled at birth by the present round of cutbacks.

In this paper, I wish to examine some of the problems of community-based care of the disadvantaged. This group includes the mentally ill, mentally retarded, dependent elderly, physically-disabled, ex-prisoners and addicts. I shall, in the majority of cases, be referring to the chronically disabled, that is those people with a long and continuing history of social problems. Most of the specific examples discussed in the paper are taken from the field of psychiatric care.

I shall first examine the geographical distribution of the "service-dependent" populations in Hamilton. Secondly, I shall explore the dimensions of the problem of planning social services for these populations. Thirdly, the specific case of the mentally disabled will be used to illustrate the preceding arguments. Finally, I shall discuss some of the policy issues requiring urgent attention at this time of profound socio-economic change.

1. SERVICE-DEPENDENT POPULATIONS IN HAMILTON

One of the most prominent outcomes of the deinstitutionalization of the mentally disordered in North America has been the "ghettoization" of the ex-patients. This is the tendency toward a pronounced spatial clustering of ex-psychiatric patients, usually in the core area of our inner cities. Ghettoization is a complex phenomenon -- a result of a wide range of forces including aspects of supply and demand for housing, and formal planning policy. For instance, the inner city is the place where there are: (1) large properties available for conversion to group homes, etc.; (2) an established supply of transient rental accomodation; and (3) established support networks (of both service facilities and personal ties). Demand for housing and jobs by ex-psychiatric patients has led to: (4) an informal (intra-city) spatial filtering of patients to the core area; (5) a significant amount of inter-regional migration (from rural areas to core areas of cities with major psychiatric hospitals); and (6) the formal referral of ex-patients to core area housing alternatives. These "market" forces encouraging ghettoization have been reinforced by two other factors: (7) an apparently extensive community opposition which has effectively excluded ex-patients from most urban residential neighbourhoods (especially in the suburbs); and (8) the development of formal planning strategies which attempt to avoid community conflict over locational decisions by seeking out non-controversial sites for neighbourhood mental health facilities.

The mentally ill have been joined in the ghetto by a host of other deinstitutionalized populations, including the dependent elderly, mentally retarded, physically disabled, ex-prisoners and addicts. The past decade has witnessed the development of a "public city" -- the spatial concentration of service-dependent populations and the agencies and facilities designated to serve them -- on an unprecedented scale. As an urban phenomenon, the public city represents a significant structural change in the form of Canadian cities. As a social phenomenon, the ghetto acts as a reservoir of potential clients, and as a primary reception area for discharged clients. As more clients arrive in the ghetto, so more services are needed to care for them; the new services themselves act as a catalyst in attracting further ex-patients, and so the self-reinforcing cycle is intensified.

The geographical pattern of the public city in Hamilton is illustrated in a series of maps appended to this paper. The maps illustrate the spatial concentration of five specific service-dependent groups in the city. These are: the users of mental health facilities, the mentally retarded, physically disabled, population over 70 years old, and probationers and parolees. A summary map generalizing the distribution of all five groups taken together illustrates the extremely concentrated distribution of these populations in the core area of Hamilton. Not surprisingly, as another map shows, this is the area where most social service agencies are also located.

2. PLANNING FOR THE DISADVANTAGED

The history and development of care of the disadvantaged is poised on a crucial cusp. The growth of community-based care is threatened by such diverse factors as fiscal restraint, neighbourhood opposition, professionals' protectionism and escalating costs. We are running the risk of a retreat back to institutional care, and the major gains of community care are being threatened.

The group most in danger from the current uncertainty over the future of the welfare state is the long term disadvantaged. This is the group with a long history of social disorder, who have traditionally been cared for in hospitals or other closed settings. During the current hiatus in the development of policy, this group stands to lose out in whatever policy direction is advocated. On the one hand of the cusp, a retreat to institution-based care threatens to incarcerate them once again. On the other hand, a continuation of present policies of community care will demonstrably leave unattended the needs of this group.

The design of a service system to meet the needs of the disadvantaged is predicated on three fundamental principles: first, that the care of the disadvantaged should, to the extent possible, be provided in a community setting; second, that there will always be a need for an "asylum" (in the sense of a sanctuary, or place of refuge) for some of the disadvantaged; and third, by extension, the disadvantaged is a group needing continuing support and care over an extended period of time. Based on these principles, the required service system may be characterized by four interrelated components: population characteristics; service characteristics; operational principles; and geographical context. Let us examine these four components in turn.

2.1 Population Characteristics

The disadvantaged have a range of needs which can be characterized in many ways. One of the more useful conceptualizations is of a continuum or spectrum of client needs ranging from autonomy through to dependency. In the former case, a person may need only occasional counselling in order to participate in everyday life; in the latter case, an extended program of drug treatment may be necessary to prevent suicide or injury. It is easy to imagine a graduated sequence of dependency through the continuum, representing varying degrees of client dependency. For example, increasingly disabled clients may find themselves progressing from short-term out-patient status to in-patient status in a hospital-based system of psychiatric care.

The significant point which is given emphasis in this particular conceptualization is that client needs and deficits among the disadvantaged are likely to change over time. Certain deficits are clearly modifiable (e.g., the lost ability to cater for oneself), while others are less tractable. The typical "client career" envisages an individual making constant adjustments along the autonomy dependence spectrum. Any adequate service system must be designed to allow for such adjustments to occur efficiently and economically.

2.3 Service Characteristics

In principle, there ought to exist a service sector available to meet all possible client needs. Hence, in parallel to the spectrum of client needs, there exists a continuum of service settings. The dependent client requires what we shall call a closed or protected setting at one end of the continuum (for example, the asylum). On the other hand, the relatively autonomous individuals can cope quite adequately in open unrestricted service settings (such as their own apartment or house).

As before, a variety of intermediate points is envisaged along the service-setting spectrum, representing varying degrees of openness and restriction in the service setting. Hence, increasing disability may be accompanied by progression from independent apartment living, through a nursing home, to a hospital.

Another aspect of service provision is that client needs are divisible into many different "sectors". Typically, the disadvantaged are observed to have needs in five different service sectors:

- social skills
- vocational/employment skills
- housing
- income
- continuing care

Again, it is important to recognize that intra-individual deficits in these five sectors are not constant, and that inter-individual deficits are not homogeneous. For instance, in the first case, an individual may quickly acquire sufficient social skills to be able to form enduring friendships; and, in the second case, one schizophrenic person may have more significant financial problems than another.

2.3 Operational Principles

The overall planning objective of a service delivery system is to maximize the "goodness of fit" between client needs and service setting. In theory, this is a simple exercise in efficient assignment. What should be the operating principles of this system? Five objectives are paramount.

1. The principle of least envelopment. Clients should be allocated to the least restrictive service setting, concomitant with their needs.

2. Progression toward autonomy. A constant effort must be made to move clients toward the autonomy end of the client need spectrum.

3. Continuity of care and assessment. The care system should facilitate, not hinder, the movement of clients through the service setting spectrum as their needs change. As a corollary, the system must ensure continuous assessment and reassessment of client needs.

4. Accessibility and availability. Services should be available and accessible in all areas concomitant with other principles of system organization (see next section).

5. Coordination. The variety of needs encountered by the disadvantaged require an effective coordination of services amongst the various responsible agencies.

2.4 Service Hierarchy and Geographic Setting

Client progress within the social service system also implies a progression through a "community" or geographical setting. Thus, a progressive envelopment of an individual might involve movement through the communities of independent living, group home, nursing home and hospital. For many, especially those living outside urban areas, this movement also implies an uprooting of the individual to a new geographical setting.

This movement (a potential "loss of community") is engendered because service systems -- especially hospital networks -- are organized hierarchically and geographically. In short, every kind of service is simply not available in all areas. Typically, in any system, there are very few "higher-order" specialized centres, such as a psychiatric hospital. These tend to be located near the population centres, i.e., in cities, and to service geographically-extensive "market areas". They cause an extensive migration to obtain services by people in outlying districts. The higher-order services tend to be supported by very many smaller, less-specialized centres, such as community clinics. These tend to have a much more geographically-confined market area, and are thus located in a dispersed manner, central to the local area they are intended to serve. This geographical-functional hierarchy of service centres is typical of many sectors, including health care, retailing, and entertainment. Its form is a response to the twin objectives of cost-effectiveness and accessibility. The former dictates that certain (presumably large) levels of client population and funding are necessary for the efficient operation of bigger, more specialized centres; the latter argues for a decentralized system of smaller-scale service opportunities.

The optimal service hierarchy is a correct balance between decentralization and centralization. The decentralized system ensures access and equity; the centralized system ensures a proper range of (often specialized) services. Decentralization -- both functionally and geographically -- is in principle to be desired. However, it is not always feasible in economic or operational terms (e.g., due to the available manpower). Sub-optimality in decentralization can be overcome by developing an efficient referral system so that rapid access to the higher tiers of care is guaranteed.

2.5 Summary of Design Principles

1. There exists a range of client needs ranging from autonomy through to dependency, and a typical disadvantaged individual will need to progress into and out of this system at frequent occasions.
2. There is a need for a concomitant range of treatment settings, from open unrestricted through to closed protected. Individual deficits may occur in any of five specific sectors: social skills, vocational/employment skills, housing, income, and continuing care.
3. Operationally, the service system should be designed to maximize the effectiveness of the assignment of client need to service setting, according to five principles: least envelopment, progression toward autonomy, continuity of care and assessment, access and availability, and coordination.
4. Health care systems are organized in functional and geographical hierarchies. Access and equity in care is ensured through a decentralized system coupled with an efficient system of referral to and discharge from higher-order (specialized) centres.

3. THE EXAMPLE OF PSYCHIATRIC CARE

The effectiveness of the assignment process described above is severely compromised by the performance of the major agents which operate within it. The actual service outcome (e.g., care or no care, and in what setting) depends very much on the way four groups mediate the assignment process. These four are: professional, client, community and planners.

3.1 Professionals

The care and treatment of the mentally disordered have always proceeded from fundamental principles of the isolation and separation of individuals in space. In penal systems, the most intense architectural manifestation of this principle was Bentham's "Panopticon", which arranged individuals in isolated cells on tiered circles about a central observation area. More generally, the spatial separation of individuals for treatment requires four principles: (1) enclosure the definition of a protected place of treatment; (2) partitioning an elementary principle of internal spatial organization in which each unit has its specific place; (3) functional sites in which internal architectural space is codes for several different uses, reflecting for instance, the need for therapeutic, administrative and work areas; and (4) rank the definition of the place one occupies in a classification hierarchy, in which status is not so much defined by place as by position in a network of relations. These principles enable professionals to describe a functional-analytic space, and to allocate clients for treatment within that space.

By the mid-twentieth century, psychiatric hospitals were overcrowded, and were reduced, in the majority of instances, to purely custodial care. Then, in the 1950's, a revolution in mental health care occurred. This was the time when a strong thrust toward a community-based mental health care was being experienced. The pressure for a community-based care derived from several sources, more especially the burgeoning evidence of the ill-effects of extended hospital confinement on the patient, and the counter-belief that a community-based care would aid in the normalization of the mentally ill. At the same time, large advances in chemotherapy enabled the effective treatment and symptomatic management of chronic patients without the need for confinement. These changes were sanctioned by government intervention, on a cost-sharing basis, in order to promote a non-asylum based community mental health care. In both Canada and the United States, an infusion of federal funds enabled local officials to shift the fiscal burden of the cost of care while simultaneously satisfying contemporary psychiatric and civil rights philosophies. The effect of the shift away from asylums to the community has been profound. In the U.S., for instance, there were 559,000 patients in state and county hospitals in 1955; this dropped to 193,000 by 1975. A majority of patient care episodes now occur in community mental health facilities.

In short, the isolation of clients is still practised, but a new spatial partitioning has been devised, based in the "community". The partitioning uses spatial separation to control the clients of the psychiatric apparatus, so that the roles and activities within the larger social environment become manageable. Thus, the social need for client treatment and differentiation has been translated into a policy of community-based isolationism.

This isolationism is exacerbated by the stark inequality in the geographical distribution of mental health care facilities within the Province. The example of group home provision illustrates the concentration of group homes in major metropolitan centres (Table 1). Newer suburbs, especially around Toronto, are noteworthy for their absence of facilities. The full range of service settings (see section 2.2) is simply not available in our communities.

3.2 Client

Upon deinstitutionalization, the person who is or has been mentally ill faces enormous challenges in everyday life. Many former patients view the prospect of discharge with sheer terror; in many cases they have simply not been provided with the skills that would enable them to cope outside the hospital. They face problems of social isolation, finding a job and a home, severe financial difficulties, and coping with their on-going psychiatric and social service needs. A survey of ex-psychiatric patients in the downtown core of Hamilton found echoes of all these difficulties in the ex-patients' own comments. On isolation: "I don't like going home (to my family) because as soon as I get there, everyone goes out and leaves me there alone"; and on housing: "It's hard to find a place to live -- people avoid me". On coping with the apparatus of the psychiatric and social services, the ex-patients were vocal and specific in their opinions: "The psychiatric attention I get is not adequate. I feel funny after medication. They only cut down on medication; they don't explain anything; they keep secrets." ... "I feel I'm being taken advantage of because of my situation. I took 35 or 40 shock treatments. I co-operated with the doctors when I didn't know what they were doing to me." ... "I feel that the attention I get is almost excessive at times."

Similar problems are encountered by ex-patients in psychiatric ghettos throughout the country. A recent examination of one Toronto neighbourhood indicates that most people live on welfare cheques of

$258 per month (1982); room and board take up 90% of this. In this extreme poverty, an individual must fight to cope in the community along with the 14,000 other patients who are discharged annually in Toronto. The ex-patient's response is typically one of "rage at every misfortune that led me here, rage at the doctors, the treatments, the pills. Rage at myself, my weakness, my poverty".

The response of a significant number of ex-patients has been to "ghettoize". Ghettoization is an informal process of spatial filtering whereby a mobile minority (25-50%) of the more severely disordered discharged individuals gravitate toward areas of transient accommodation in the core areas of Canadian cities. In effect, some aspects of the hospital ward are being recreated in the inner city -- a kind of asylum without walls. The most significant impetus behind this agglomeration is the search for a social support network. Many studies have suggested that it is in the ghetto that ex-patients find help in the search for jobs and homes, can locate other support facilities, begin or renew friendships, start self-help groups, and operate newsletters. In short, the ghetto is very functional for ex-patients; it is a spatially limited zone where individual support is made possible through proximity. For the clients, the inner city has become a coping mechanism.

3.5 Community

The success or failure of a community-based mental health care will largely depend upon the community's attitudes toward the mentally ill. Research on attitudes suggests that there exists a contradictory mixture of sympathy and rejection. On one hand, we sympathize with the "sick" person in need of care; on the other, we seek to maintain our social distance from the social outcast who manifests deviant behaviour. Opinions about mental illness resolve into four attitudinal dimensions: (1) authoritarianism, which implied a view of the mentally ill as an inferior class requiring coercive handling; (2) benevolence, a paternalistic, kindly view of patients, derived from humanistic and religious principles; (3) social restrictiveness, viewing the mentally ill as a threat to society; and (4) a community mental health ideology, representing an anti-institution bias in care of the mentally ill.

Little is known about the qualities which make for a good "host" for a community-based mental health service. It is generally acknowledged, however, that successful resocialization of the mentally ill will require a certain input from the community members. These services may include assistance in shopping, or even home visits.

For the chronic patient, the social support system offered by an institution may best suit the rehabilitative needs of the client. For others, however, there is a great potential for integrating the client totally into the community. There are three basic components which act to produce a positive integration. In order of their importance, these are: (1) community characteristics, including positive response of neighbours; (2) resident characteristics, including client satisfaction with living arrangement and therapy, and control over financial arrangements; and (3) facility characteristics, including the facility as an ideal psychiatric environment and the integration of clients with residents from the external community.

The mentally ill, like other minority social groups such as the poor, are restricted in their selection of residence, workplace and residential outlets. Their continued isolation can be interpreted as part of a wider system of socio-spatial organization which causes the separation of antagonistic groups. Thus, just as the processes of residential differentiation cause the appearance of class- and ethnically-separated neighbourhoods, so similar processes tend to isolate and exclude the mentally ill. It seems likely that the entrance of the mentally disabled into a community is perceived as a threat to the environmental resource base of the neighbourhood, and hence the market capacities contained within it. Accordingly, the community's power for spatial exclusion is often marshalled to protect its "turf" from the incursion of the mentally ill.

3.4 Planners

Urban planners have responded to increasing community opposition by developing locational strategies which minimize conflict over facility siting decisions. Most of these conflict-minimizing strategies have tended to reinforce the trends toward isolation and exclusion evidenced in the behaviour of the community, client and health professional.

In broad terms, phase one of the planners' strategy aimed at containment of opposition. The locational search was directed toward sites where opposition could be manipulated through one of two siting strategies. The first of these is the "fly-by-night" approach, whereby a facility is opened by stealth, without informing the host neighbourhood. The hope is that by the time the facility's presence is discovered, the community will realize that any fears it might have conjoured were groundless. A second strategy has been called the "low-profile" approach, in which an attempt is made to educate and persuade the host community to accept the facility before it is opened. The low profile approach may target community leaders, or could take the form of a more general public awareness campaign (through mailings, public meetings, and so on). Needless to say, both the fly-by-night and the low-profile approaches are not risk-free; in fact, if such strategies are perceived as subterfuge by the host community, the potential for inciting a most vitriolic opposition is great.

It was due to the unpredictable outcomes of the containment strategies that a second phase of siting approaches was developed. These may be termed risk aversion strategies. These had, as their objective, the complete avoidance of any siting conflict. And, since such conflict typically arose around the need to apply for a zoning variance (mental health facilities usually breached strict land-use/zoning regulation when sited in residential areas), planners next sought out areas where such variances were not needed. Of course, such opposition-free sites proliferated in the mixed land-use/zoning districts typical of our inner cities. As a consequence, during this period, a large proportion of mental health facilities were sited in the core areas.

The most interesting recent developments in planning strategy have occurred in the third phase of policy formulation. This has seen the growth of a movement for "fair-share zoning". Many host communities perceived themselves becoming "saturated" with mental health facilities, while other neighbourhoods had none. Thus, community opposition developed in neighbourhoods which felt they were being asked to shoulder more than their "fair share" of the caring burden. In many areas (e.g. New York

State), local zoning ordinances were passed to prevent further mental health facilities from opening in over-burdened communities. It was then only a matter of time before the cry to "open up the suburbs" to mental health facilities was heard, and the fair-share zoning, or zoning "as-of-right" movement was born.

So far, fair-share zoning has had only a small impact on siting strategies. Even if suburban properties were to be made available they are typically beyond the pocket of, and have less access to core services for the ex-psychiatric patient. Moreover, somewhat belatedly, planners are beginning to realize the positive aspects of the ghetto for ex-patients. For the moment, the future of the ghetto is on hold, although already some ghettos are being subjected to slow attrition (through gentrification, etc.)

4. POLICY ISSUES IN THE PROVISION OF SOCIAL SERVICES FOR THE DISADVANTAGED

Alexander Leighton, in his "Caring for Mentally Ill People", notes some of the difficulties in achieving effective mental health care. He writes (p. 14):

> The array of goals, intentions, and activities in the field of mental illness are of such vast proprotions that accomplishment is defeated. From the mental hospital movement of the nineteenth century to the mental health center movement of our own time, there have been repeated efforts to achieve goals that were beyond what society could or would sustain. These efforts have had boom and blight properties, with initial

> enthusiasm and high expectation being followed
> by disappointment and loss of public confidence,
> leading to bewildering reversals of policy
> and the abandonment of mentally ill persons.
> Commonly, it was and is the chronically ill
> individual who endures the brunt of these changes.

Leighton's insight emphasizes that we are undertaking a significant restructuring of our social welfare arrangements (i.e., deinstitutionalization and the development of community-based care) at a time of severe economic stringency. Over the next few years, we may typically expect to witness:

* general cutbacks in the level of support for social policies
* attempts to increase user costs and reduce the state's burden in the area of social policy;
* attempts to shift responsibility to lower levels of government where the fiscal crisis is most severe;
* pressure for the re-privatization of parts of the welfare state and more specifically for expenditures to switch from direct provision of services to public subsidy and purchases of privately-produced services;
* attempts to improve the "efficiency" of social services;
* adjustments to education and social security policies to adapt the labour force and potential labour force more effectively to the needs of the labour market;
* less response from state policy to the needs of groups who cannot be reintegrated into the labour force; and

* an increasing use of voluntary labour in the administration and delivery of social services, for purposes of increased social control and fiscal saving.

And what happens to the clients -- the disadvantaged in need of services -- under these circumstances? It seems to me that we are indeed poised at the edge of a crucial historical cusp. The choice is to retreat back to institutional care or to renew our commitment to community care. (The other alternative of an even further retreat to family-based care is too fundamental to consider at this stage in the argument.) Here are some basic issues surrounding this choice.

1. The public city ghetto is a coping mechanism for large numbers of service-dependent populations. Should it be dismantled (as some current zoning laws are facilitating), or should its positive features be appreciated and preserved?

2. Should some concerted effort be made to decentralize social service facilities beyond the ghetto? This would not only increase client access to services, but would involve the suburbs in accepting their "fair share" of the caring burden. Or would this simply further isolate the disadvantaged in high cost suburban housing?

3. Perhaps the approach should be to develop "service hubs" throughout our communities? I am not advocating the development of specialized "treatment centres" for the disadvantaged. Instead, it may be possible that some specialized activity centres could be added to existing service centres in the community. These existing centres would include shopping malls and other centres of community activity where levels of existing services are already high (including, for

example, transportation, restaurants, theatres, laundry services, bowling alleys, libraries, and clinics). If specialized services, reflecting the specific needs of the disadvantaged (e.g., sheltered workshops), were "added on" to these existing centres, then a wide range of new communities would be created for them. The purpose of the service hub will be everywhere the same: that is, to provide the necessary level of support and choice in community-based living for the disadvantaged so that their quality-of-life is maximized and they are able to remain out of institutions.

4. There are no clear answers to what is manifestly a complex problem. However, a rational assessment of the problem is vital and urgent if we are to avoid an unthinking retreat from the gains of deinstitutionalization and community-based care of the disadvantaged.

TABLE 1

BED RATIOS IN SELECTED CITIES (1978)*

(Number of Beds Per Thousand Population)

		3 - 10		3 - 20	
City	Population	# Beds	Ratio	# Beds	Ratio
Brampton	104,528	45	.43	100	.96
Burlington	103,728	0	0	29	.28
East York	104,102	0	0	0	0
Etobicoke	293,464	27	.09	41	.14
Hamilton	312,162	109	.35	306	.98
Kitchener	131,801	62	.47	119	.91
London	247,065	75	.30	177	.72
Mississauga	250,399	28	.11	64	.26
North York	550,067	17	.03	17	.03
Oshawa	105,663	63	.60	107	1.02
Ottawa	305,975	123	.40	292	.96
St. Catharines	122,773	15	.12	47	.39
Scarborough	380,931	29	.08	42	.11
Sudbury	97,618	59	.61	88	.91
Thunder Bay	109,153	134	1.23	231	2.12
Toronto	678,103	459	.68	944	1.39
Windsor	196,512	30	.15	117	.60
York	139,162	0	0	0	0
TOTALS	4,233,206	1275	.30	2721	.64
TOTALS EXCLUDING METRO TORONTO	2,087,377	743	.36	1677	.80

*TOTAL FIGURES FOR ONTARIO

SIZE 3-10 - THERE ARE 597 HOMES TOTALLING 3492 BEDS FOR A BED RATIO OF .43

SIZE 3-20 - THERE ARE 821 HOMES TOTALLING 6836 BEDS FOR A BED RATIO OF .84

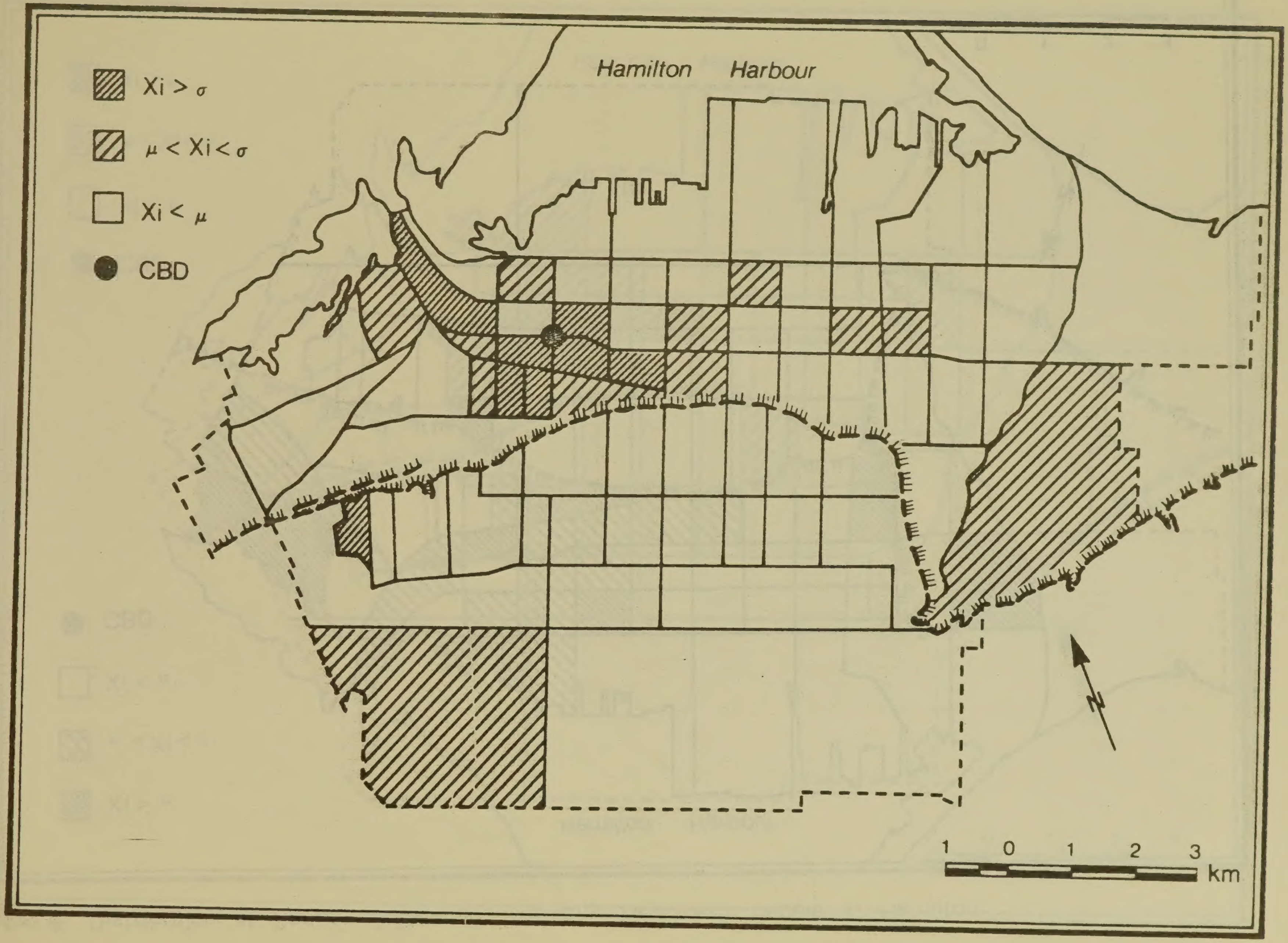
FAMILY BENEFITS:

GEOGRAPHIC BREAKDOWN OF SINGLE PARENT AND DISABLED CASES

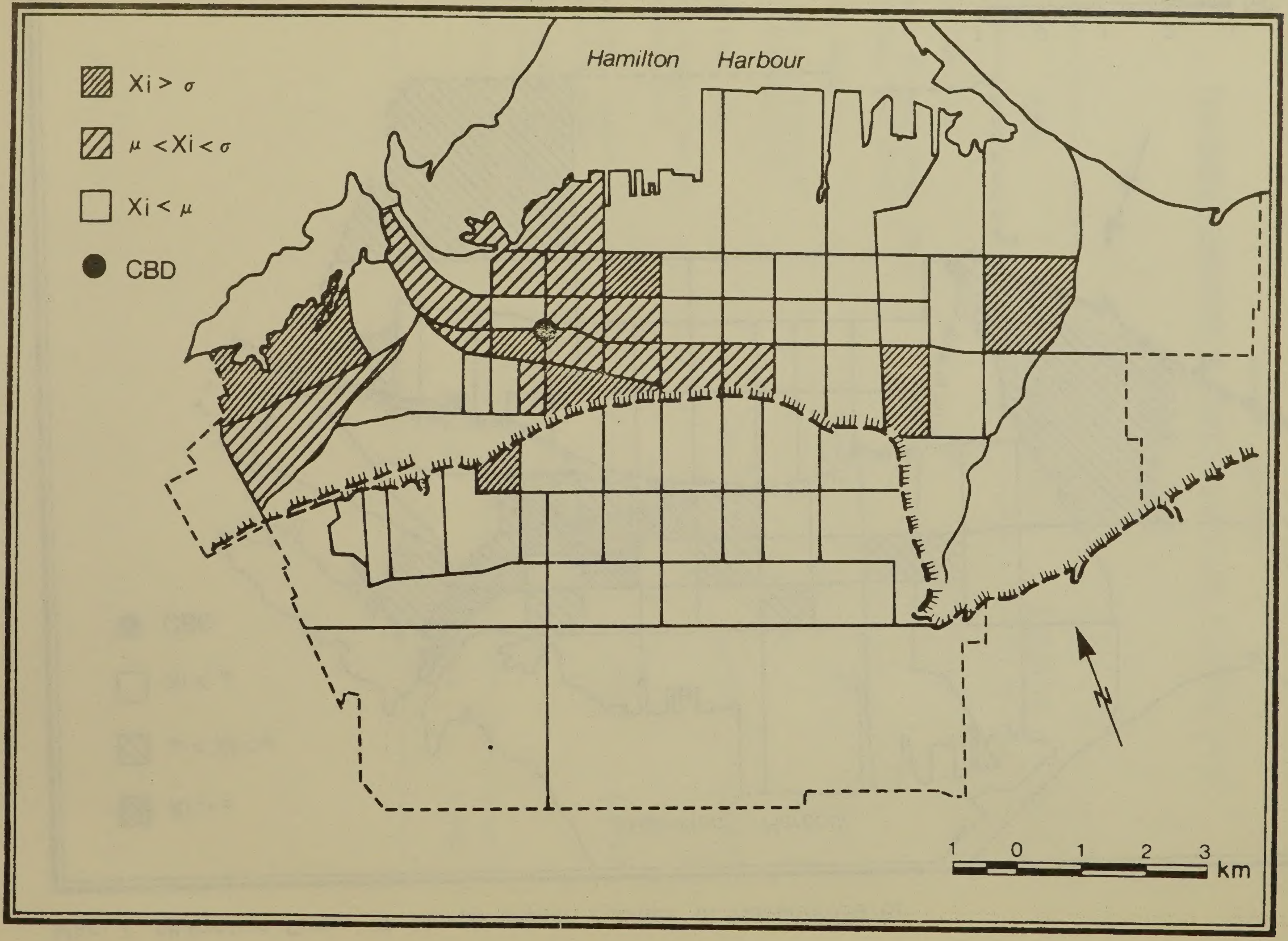
(December, 1982)

AREA	SINGLE PARENTS	DISABLED	TOTAL
West Hamilton (West of Wellington St., Dundas, Waterdown)	799	1,251	2,050
East Hamilton (East of Ottawa St. to Highway #20)	1,196	661	1,857
Hamilton Core (Wellington St. to Ottawa St.)	898	1,103	2,001
Hamilton Mountain & Outlying Areas (Ancaster, Mt. Hope, Binbrook, Stoney Creek)	1,119	929	2,048
	4,012	3,944	7,956

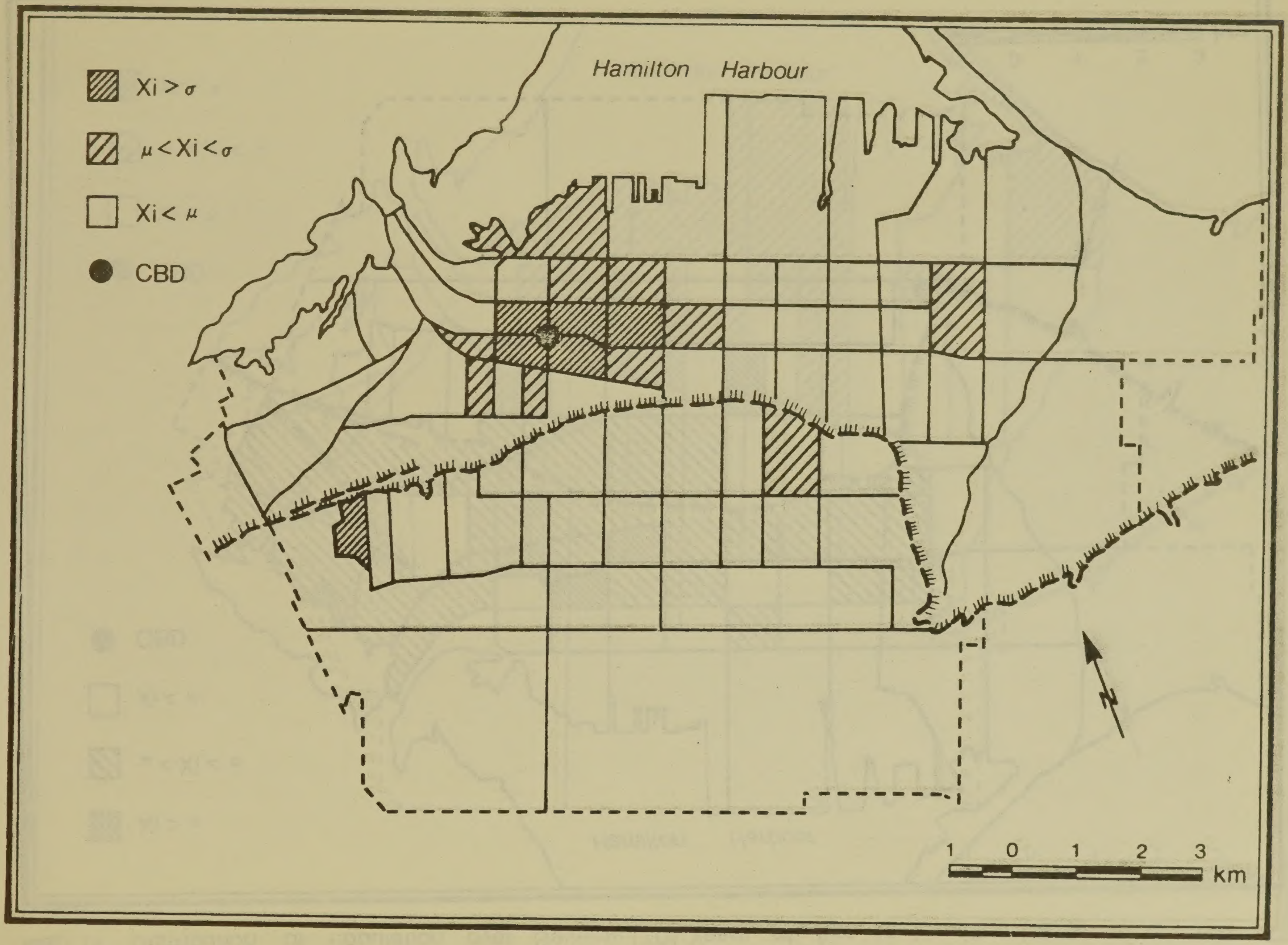
Map 7 Utilization Rates of Mental Health Facilies in Hamilton.(1976)


▨ $X_i > \sigma$
▨ $\mu < X_i < \sigma$
☐ $X_i < \mu$
● CBD
Hamilton Harbour
N
1 0 1 2 3 km

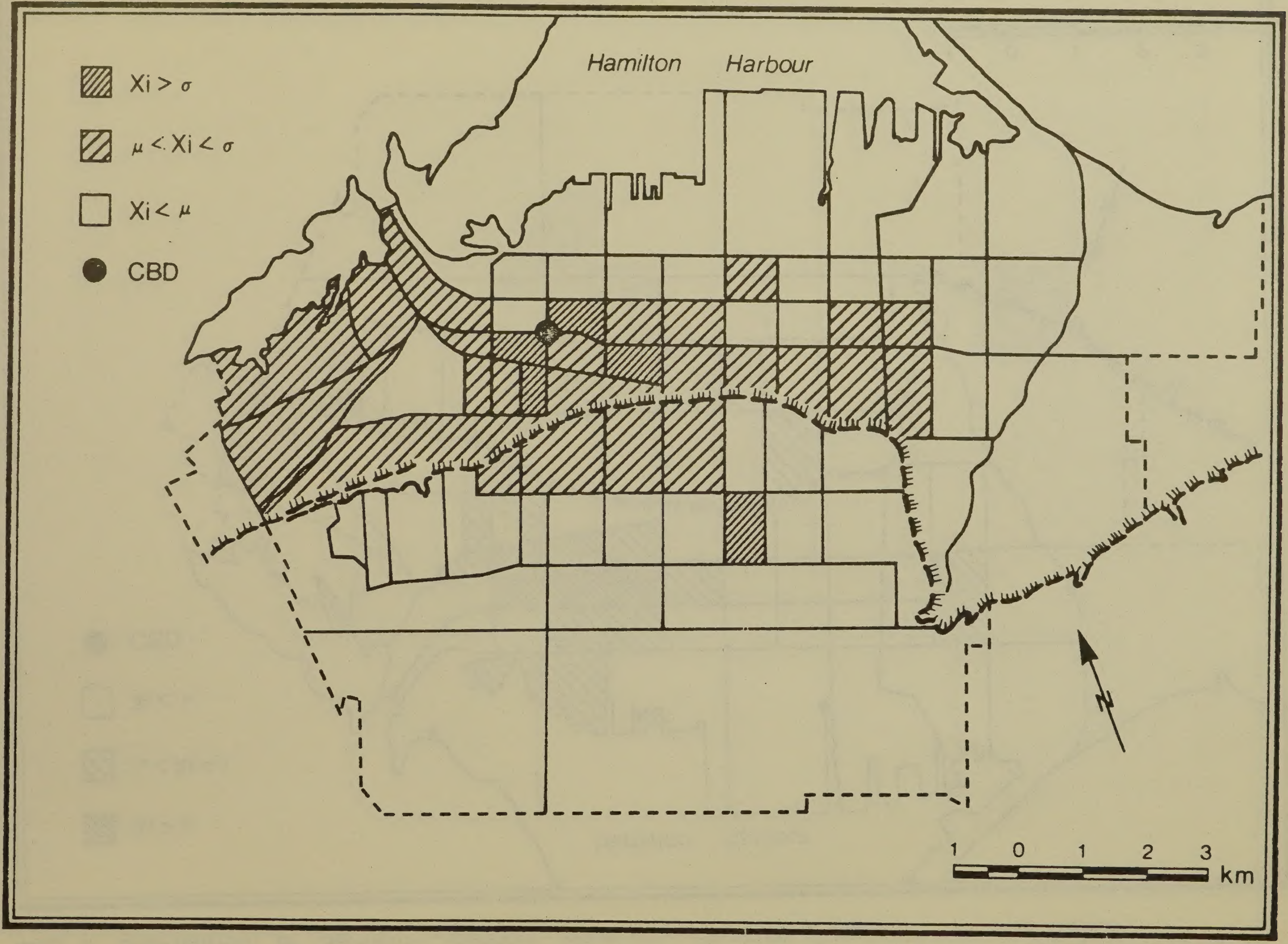
Map 8 Distribution of Service Dependent Mentally Retarded People in Hamilton.


Xi > σ
μ < Xi < σ
Xi < μ
CBD
Hamilton Harbour
N
1 0 1 2 3 km

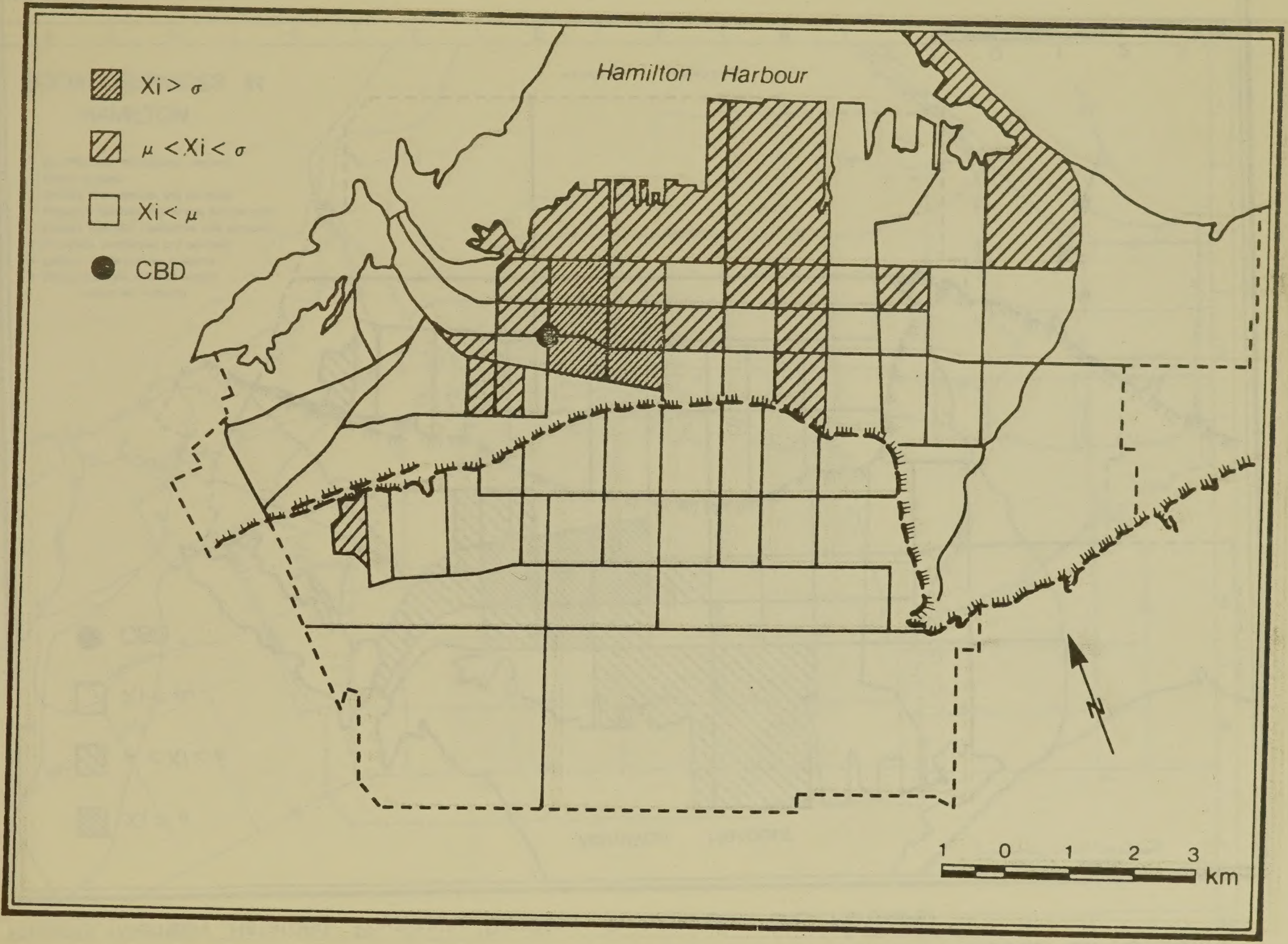
Map 9 Distribution of Service-Dependent Physically Disabled People in Hamilton.(1980)


Hamilton Harbour
▨ Xi > σ
▨ μ<Xi<σ
☐ Xi< μ
● CBD
N
1 0 1 2 3 km

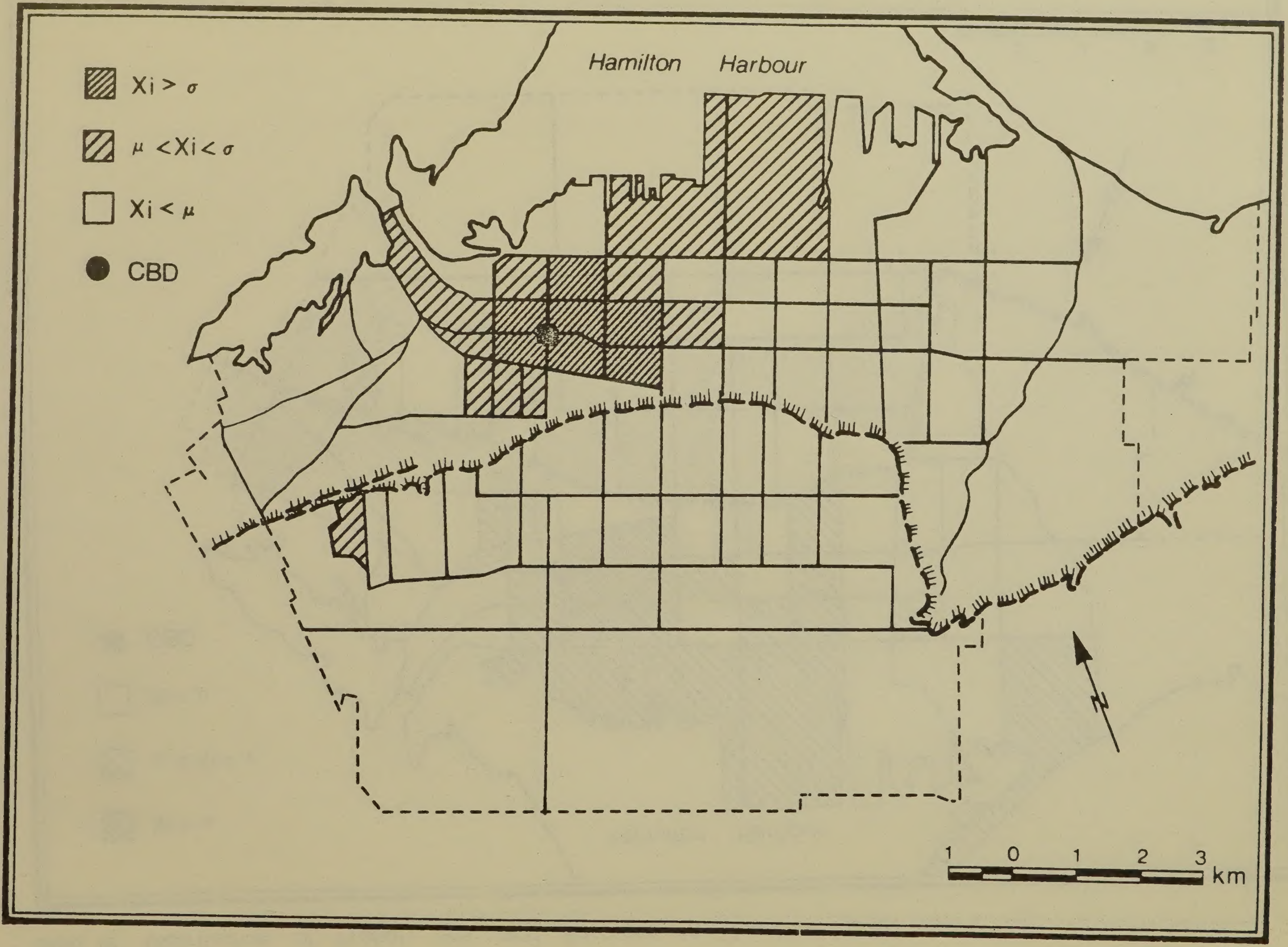
Map 11 Distribution of Population over Seventy (70) Years of Age in Hamilton. (1979)


Xi > σ
μ < Xi < σ
Xi < μ
CBD
Hamilton Harbour
N
1 0 1 2 3 km

Map 12 Distribution of Probationers and Parolees in Hamilton (1979)


Hamilton Harbour
Xi > σ
μ < Xi < σ
Xi < μ
CBD
N
1 0 1 2 3 km

Map 15 Distribution of Major Service-Dependent Populations in Hamilton. (includes Ex-Psychiatric Patients, Mentally Retarded, Physically Disabled, Probationers and Parolees)


Hamilton Harbour
Xi > σ
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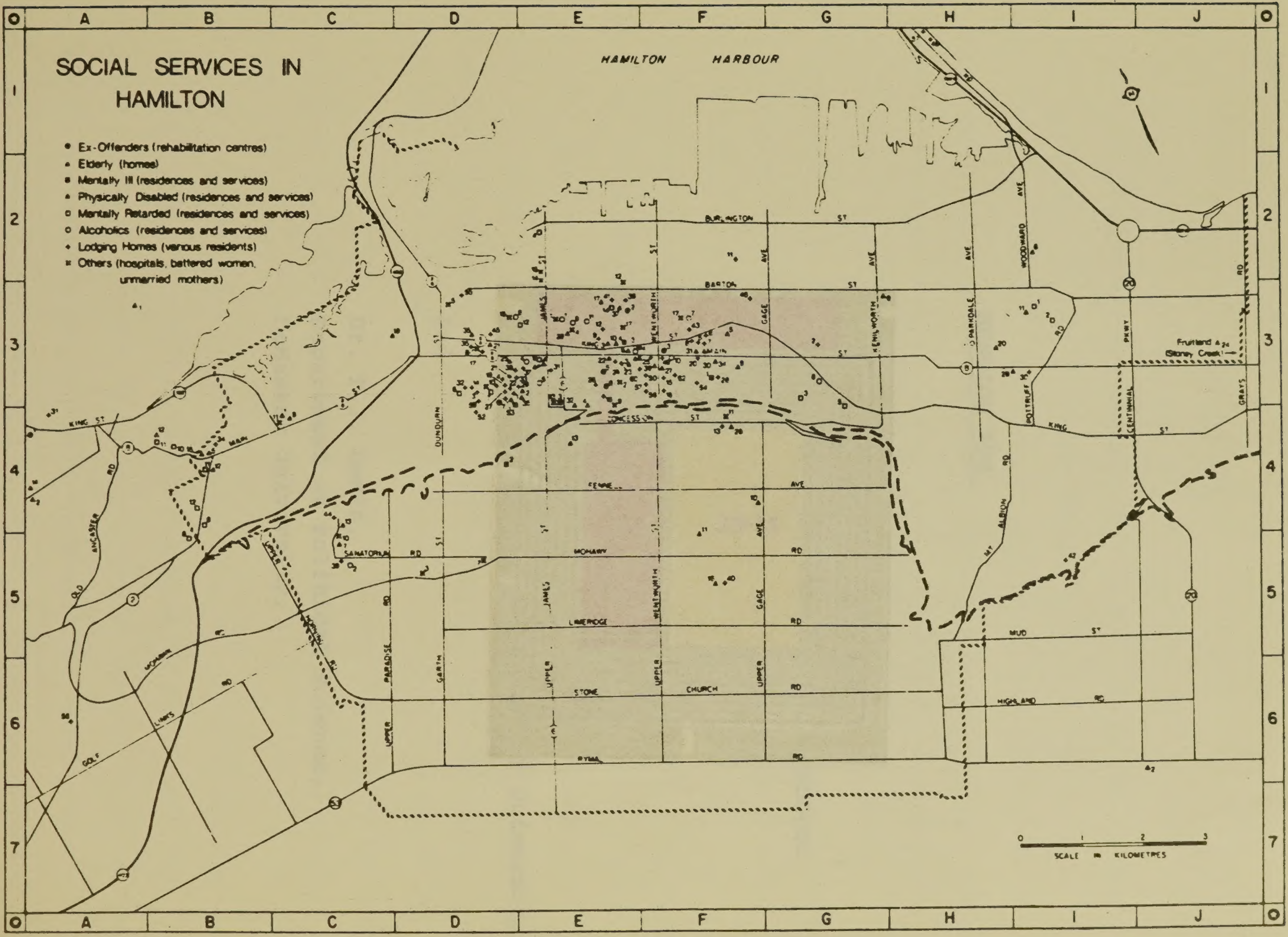
Xi < μ
CBD
N
1 0 1 2 3 km

SOCIAL SERVICES IN HAMILTON
● Ex-Offenders (rehabilitation centres)
▲ Elderly (homes)
■ Mentally Ill (residences and services)
▲ Physically Disabled (residences and services)
□ Mentally Retarded (residences and services)
○ Alcoholics (residences and services)
◆ Lodging Homes (various residents)
✖ Others (hospitals, battered women, unmarried mothers)
HAMILTON HARBOUR
BURLINGTON ST
BARTON ST
KING ST
MAIN ST
CONCESSION ST
FENNELL AVE
MOHAWK RD
LIMERIDGE RD
STONE CHURCH RD
RYMAL RD
DUNDURN ST
JAMES ST
WENTWORTH ST
GAGE AVE
KENILWORTH AVE
PARKDALE AVE
WOODWARD AVE
POTTRUFF RD
CENTENNIAL PKWY
GRAYS RD
MT ALBION RD
MUD ST
HIGHLAND RD
UPPER PARADISE RD
GARTH ST
UPPER JAMES
UPPER WENTWORTH
UPPER GAGE
SANATORIUM RD
ANCASTER RD
MOHAWK RD
GOLF LINKS RD
Fruitland & Stoney Creek
0 1 2 3
SCALE in KILOMETRES
A B C D E F G H I J
0 1 2 3 4 5 6 7

SESSION IVd

SOCIAL HOUSING FOR LOW-INCOME FAMILIES IN INNER-CITY NEIGHBOURHOODS

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And

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SOCIAL HOUSING FOR LOW-INCOME FAMILIES IN INNER-CITY NEIGHBOURHOODS

INTRODUCTION

Federal funding for low-income family housing has been so reduced over the past eight years that only about two thousand units have been produced annually for all of Canada.[1] This minimal response to the housing needs of low-income families has led Professor Albert Rose to lament the housing problems of hundreds of thousands of families, and to claim that there is no public support for the allocation of resources to seriously address this housing need (Rose, 1980: 198). The result is that in the Western Lake Ontario Corridor, as in most other areas of the country, the need for low-income family housing is acute.

In the older industrial cities in the Western Lake Ontario Corridor, such as Hamilton, the problem of housing low-income families is intertwined with the decay of inner-city neighbourhoods and the deterioration of residential and commercial property. Indeed, the Regional Housing Statement, Update-1982 concludes that "The maintenance of the existing housing stock may become Hamilton-Wentworth's most pressing housing issue in the 1980s and beyond"(51). This paper examines a non-profit housing project in Hamilton that has converted some deteriorating residential and commercial property into housing for low-income families.

The paper begins with a brief analysis of Canadian social housing over the past forty years, and specifies constraints to be met if the political support Rose claims is necessary is to be created. It then describes how the pilot project has been designed to meet these constraints, provides some initial evidence of the acceptance of the project by tenants and neighbours, and suggests that projects that receive political support have the potential to draw substantial social housing funds to the older industrial municipalities in the region.

THE CANADIAN EXPERIENCE WITH SOCIAL HOUSING FOR LOW INCOME-FAMILIES

In the latter part of World War II the federal government began to establish a legislative and administrative framework for social housing. The National Housing Act was passed in 1944 and then significantly amended to facilitate social housing in 1949. Central Mortgage and Housing Corporation was established in 1945 to administer the National Housing Act. The new corporation took over the management of the 19,000 "temporary" wartime houses built by Wartime Housing Limited between 1941 and 1945, and the more than 27,000 veteran's housing units built between 1945 and 1949 (Dennis and Fish, 1972: 127). By the mid-1950s the stock of wartime and veteran's housing had been sold, and the federal government had done little to encourage the construction of social housing. Thus, throughout the 1950s there was only a trickle of social housing units produced, averaging less than 1000 units per year for both families and the elderly (Dennis and Fish, 1972: 173). By 1960 there were at most 15,000 units in Canada (Rose, 1980: 36, 37).

In the early 1960s the federal government recognized that the very small stock of housing units was inadequate to meet the needs of Canadians in the lowest part of the income distribution. In June 1964, the social housing provisions of the National Housing Act were significantly changed. Section 35 set out much more financially favourable terms for provincial participation, and C.M.H.C. was authorized to make direct loans to provincial, municipal, and non-profit corporations for the acquisition, construction and operation of social housing. As a result of these changes provincial housing authorities were established in most provinces and tens of thousands of rental units were constructed in the large urban centres throughout the country. By 1972 the Ontario Housing Corporation alone had acquired a stock of nearly 50,000 units (Rose, 1980: 105). Most of the current stock of O.H.C. family units in Hamilton were built during this period.

The unprecedented activity in social housing soon led to assessments of how well the projects met the housing needs of the low-income groups and of the impact of housing projects on the immediate urban environment. The Report of the Federal Task Force on Housing and Urban Development in January 1969 (the Hellyer Report) was followed by Dennis and Fish's Programs in Search of a Policy in 1972. Both reports agreed on the unsatisfactory nature of most social housing for low-income families. They concluded that the existing high-density projects had become "ghettoes for the poor," that tenants felt cut off from normal families and stigmatized as public housing families, and that the neighbouring communities resented the influx of so many "problem" families (Hellyer, 1969: 52-61; Dennis and Fish, 1972: 1-27, 173-223). Both reports recommended the curtailment of the existing form of public housing; the use of shelter allowances for low-income families, which would allow the purchase or rental of more adequate housing in the private market; and the integration of low-income family housing with housing for higher income groups (Hellyer, 1969: 56, 57; Dennis and Fish, 1972: 15, 16, 218).

The two reports had made clear that although there had been sufficient political support to initiate some social housing projects in the 1950s and to expand these programs in the 1960s and early 1970s, the nature of the projects had stiffened opposition to social housing. Opposition had been strongest in small towns and cities and suburban communities, and because social housing required local initiatives during the 1950s, the few projects undertaken were mainly confined to central cities as part of urban renewal.

But the creation of new high-priced, high-density multiple unit ghettoes for the poor did nothing to erode local opposition. Even during the 1960s, when large numbers of smaller scale low-rise projects were built on the undeveloped land on the peripheries of urban areas, many towns and cities successfully blocked the location of any family social housing in their communities. The two negative assessments had hit a responsive chord and even the most ardent supporters of social housing realized that it could not continue in its existing forms.

The traditional high density programs were drastically curtailed, and the 1973 amendments to the National Housing Act provided the basis for different directions in public housing. Following the assisted home ownership recommendations of the Hellyer Report, sections 34.15 and 34.16 of the amended Act provided for financial assistance in the form of reduced mortgage interest rates for a five year period, and direct grants for families purchasing a new home. The amendments also encouraged more co-operative housing by making loans available before a co-operative was organizationally complete. Section 15.1 was designed to encourage charitable and municipal non-profit housing by increasing the amount of low interest loans to 100% of the value of a project, and by providing for additional grants up to 10% of capital costs.

These amendments were announced as new ways to meet social housing needs and to avoid the problems with earlier programs. However, over the next decade social housing resources were directed away from low-income families and towards the elderly and middle-income families. Families who took advantage of the Assisted Home Ownership Program (A.H.O.P.) came almost entirely from the middle of the income distribution rather than the lower fifth for whom the social housing of the 1960s had been provided (Patterson, 1978: 298-299). The expansion of co-operatives had the same effect. Families with the ability to engage in the long-term project of organizing themselves into co-operatives and then seeing through the planning and construction of a housing project have a range of social, economic, and organizational skills predominately found in middle and higher-income groups. Lower-income families seldom have the resources to avail themselves of this form of social housing.

The real potential for housing low-income families lay with the expanded role for municipal and charitable non-profit housing corporations. But this potential was not realized for two reasons. Prior to 1972 about two-thirds of social housing units were for families with children and one-third for the elderly. In the past decade the units constructed by municipal and charitable non-profit corporations have reversed that ratio: one-third for families and two-thirds for the elderly (Patterson, 1978: 294; Rose, 1980: 176). The second reason for the drastic reduction in units for low-income families was the strategy adopted to integrate low-income families with middle-income families. Since 1973 nearly all family projects have limited the proportion of low-income families by designating between 15%and 25% of each project as geared-to-income units, and 85% to 75% of each project as lower-end-of-market units. Because the rents of most of the latter units are too high for low-income families, at most 25% of the family units built by municipal and charitable non-profit corporations have been available for low-income families.

During the eight years from 1974 through 1981, 146,021 social housing units were built, averaging 18,253 units per year. Of these a total of 86,678 units were built for the elderly (Canadian Housing Statistics 1981: tables 56 and 63). The difference between these totals is 59,343 units of family housing. Because at most 25% of the family units are used to house low-income families, of the 59,343 units fewer than 15,000 units over the eight years were produced for low-income families, or less than two thousand units per year for all of Canada. By 1981 there were 764 private non-profit family units in Hamilton, nearly all of which were provided by Victoria Park Community Homes. But because of the limit of 15% geared-to-income units only about one hundred units were effectively targeted for low-income families (Update-1982).

The 1973 amendments to the N.H.A. signalled the shifting of priorities. Federal social housing money would be allocated to higher income groups through A.H.O.P, and to rental housing for the elderly. Rental housing also would be provided mainly for middle-income families in integrated projects with a maximum of twenty-five percent of units designated for low-income families. The ambitious expectation that social housing could be used to improve the urban environment by the high profile replacement of slums with good housing for the urban poor had been replaced by the minimalist hope that social housing for low-income families could at least be stopped from damaging a community, if the units were small in number and dispersed amongst higher income units. Invisibility has been the watchword since the early 1970s, and invisibility has been achieved by severely reducing units for low-income families.

AN EXAMPLE OF NEIGHBOURHOOD SENSITIVE HOUSING FOR LOW-INCOME FAMILIES

The current reliance on integrated projects is an attempt to build politically acceptable housing (Patterson, 1978: 296), but the small proportion of low-income family units in these projects makes them ineffective and costly vehicles for housing low-income families. Thus, the basic problem remains: how to provide a large number of inexpensive units that are sufficiently neighbourhood sensitive to generate rather than erode political support. There are three general conditions to be met:

1. Cost effectiveness
2. Tenant satisfaction with the unit and neighbourhood
3. Neighbourhood support for social housing.

There is a pilot project in Hamilton whose purpose is to provide housing for low-income families and to stabilize inner-city neighbourhoods. The project has been designed to meet the three constraints of cost effectiveness, tenant satisfaction, and neighbourhood support. The non-profit corporation buys residential and commercial property in poor condition, does extensive renovation and/or conversion, and rents the units mainly to low-income families. The corporation began operating early in 1982 and by September 1983 it had housed 148 families: 136 families in single-family and semi-detached units, and 12 families in an old commercial property converted to apartment units. Initially the target area was confined to East Hamilton, however the corporation is currently acquiring rundown houses throughout the central area of the city as far west as Dundurn Street.

In Hamilton as a whole, house prices have risen only slightly during the past six years. In the Central City and East Hamilton prices generally have been static; they have risen somewhat in the newer areas in the extreme east, west, and on the mountain, but have declined sharply in some areas, particularly in the northern strip between Barton Street and Burlington Street. These price movements are good indicators of the changing conditions of the housing stock. Decaying housing is not a serious problem in the newer areas, but in the northern area dilapidated and vacant houses have been a common phenomenon for many years. Over the past four or five years a combination of high mortgage rates and high levels of unemployment has exacerbated the problem of deterioration and abandonment, and the problem has begun to spread out from the traditional problem areas into the more stable middle-income areas.

At the same time there has been a marked increase in vacant commercial space throughout the central and eastern parts of the city. This problem is most acute in the Barton Street area between James Street and Gage Avenue where many mainly retail buildings have long been empty and are in very bad condition.

The project is funded in the usual manner under the social housing provisions of the N.H.A. The housing corporation arranges financing for purchase and renovation from an approved lender at prevailing market rates. C.M.H.C. guarantees the mortgage loans and pays a monthly subsidy to reduce the effective interest rate from the market rate to two percent per annum. The average purchase price of the first 136 units was $22,000 and the average rehabilitation cost was $9,500. Legal and administrative costs of $1,500 per unit bring the total cost per unit to about $33,000. Rents are set at approximately twenty-five percent of gross family income. Rents range from $170 to $450 per month with an average of about $285 per month. There is no clear distinction between rent geared-to-income and lower-end-of-market rent as is commonly found in private non-profit and municipal non-profit integrated projects. Rents below the average of $285 are well below lower-end-of-market. Rents above $350 per month are generally close to lower-end-of-market rents, and these houses are occupied by families with incomes above $22,000 per year. Family incomes range from $4,000 per year to $32,000 and average about $14,000 per year.

Although the corporation expects to rent many of these homes indefinitely, it has provided a purchase opportunity for tenants. At any time during the first five years the tenant may buy the home at a fixed price: the initial purchase price plus renovation and initial administrative costs. After five years the price is to be negotiated by the tenant and the corporation based on fair market value at that time. At time of purchase the tenant is responsible for arranging a conventional mortgage at prevailing market rates and the subsidy from C.M.H.C. ends. However there is no obligation to purchase; each family may choose to purchase if and when it wants to assuming it has the required financial resources.

Although the housing corporation has used both rundown residential and commercial property for housing low-income families, to date it has concentrated on residential property because residential neighbourhoods are generally more suitable sites for family housing than commercial areas. The following analysis focuses on the residential component of the project.

Cost Effectiveness

In Ontario the capital cost of building new integrated multi-unit projects ranges from $45,000 to $55,000 per unit depending on size and location, with an average cost of about $51,000. The Hamilton project's capital costs range from $20,000 to $52,000 per unit including purchase and renovation, with an average cost of $33,000. Comparing the Hamilton project with a conventional integrated project financed at the same interest rate, say 13%, and subsidized to an effective interest rate of 2%, there is annual savings of $198,000 in interest payments in the Hamilton project. In addition, the exercise of the purchase option will end the subsidy for some of the Hamilton project units. To date there are no exactly comparable operating cost figures for the two types of projects, but the municipal non-profit programs in Ontario receive operating grants from the provincial government so that they can increase the number of families paying rent geared-to-income from 15% to 25%. This additional operating revenue is not paid to the Hamilton project.

Assuming that social housing expenditures are primarily intended to provide housing for low-income families, it is appropriate to conclude that the greater the ratio of low-income families to middle-income families the more effective the program. Ross (1983), using the Canadian Council on Social Development figures, calculated that 21.7% of all families have low incomes. In Ontario in 1981 about 20% of families had incomes under $15,000 per year. According to the 1981 annual report of a municipal non-profit housing program, similar to many in Ontario, 30% of units were rented to families with incomes under $15,000 per year and 70% were rented to middle-income families earning from $15,000 to $45,000 per year (Peel, 1981). In 1982 the Hamilton project rented 57% of its units to low-income families with incomes of less than $15,000 per year and 43% to families earning from $15,000 to $32,000 per year.

The project is significantly more cost effective than the current integrated projects for two reasons. First, it takes advantage of the lower costs of purchasing and renovating existing houses compared with the per unit cost of construction of new multi-unit buildings. Second, the project takes advantage of the natural dispersion that occurs by buying houses throughout existing neighbourhoods. Integrated projects achieve much less dispersion by using social housing money to construct at least three middle-income lower-end-of-market units for each lower-income unit. Thus, the Hamilton project has a greater capacity to deliver housing to low-income families.

Tenant Satisfaction

Tenant satisfaction and neighbourhood support should be mutually reinforcing (Onibokun, 1972: 8-9). The greater the degree of tenant satisfaction with the non-profit corporation as a landlord, the type of housing, and the condition and the location of the house, the more likely it is that the tenant will care for the house, and be encouraged to be a pleasant and cooperative member of the neighbourhood. Thus tenant behaviour should elicit neighbourhood support for the project.

A number of features of the project should contribute to tenant satisfaction, these include: house type, community amenities, dispersion of units, choice of house and neighbourhood, ownership opportunity, maintenance of existing social networks, and the use of existing neighbourhood networks.

> House Type: All houses are ground level with private front yards and backyards. There is good evidence that in our society nearly all families with young children believe single-detached or semi-detached housing to be the most appropriate. Other forms of housing, however adequate objectively, are generally believed to be satisfactory only on a temporary basis, and/or as a means to a more appropriate type of housing (Michelson, 1977: 25-26; 1980: 146-148).
>
> Community Amenities: Each house is located in an established urban neighbourhood with a mature network of public services: schools, libraries, recreation complexes, social service agencies, hospitals, bus service; and private services: churches, service clubs, social clubs, neighbourhood stores. Location within a dense web of services is particularly important for low-income families because they generally lack the private resources to make use of services unless they are in close proximity.
>
> Dispersion of Units: The houses are widely dispersed throughout a substantial area of the city, and each is part of a residential neighbourhood. Tenants may have to deal with neighbourhood apprehension or even hostility toward public housing families, but it is also quite possible that neighbours do not even know that a project house is part of a housing project. Thus the tenant family has considerable opportunity to become an unobtrusive part of a typical neighbourhood.
>
> Choice: When approved for a house a family has a choice about the house and the neighbourhood. In conjunction with the choice of type of house the family also can consider the advantages of different locations such as: proximity to friends and relatives, place of employment and worship, and to the schools attended by their children. The family's opportunity to choose should enhance satisfaction in two ways: first, by allowing the family as much scope as possible to fit housing to its own needs as it understands them; second, the family can be expected to feel a significant responsibility to make the best of whatever shortcomings the house and/or location may have, for it was after all their choice.

Home Ownership: The Hamilton project provides low-income families with rental housing in the short run and the possibility of home ownership in the longer run. This opportunity can be expected to alter the way that the family feels about their home. Michelson's work on the criteria for choosing a house indicates that a family's satisfaction with their current housing is "...in part a function of their expectations for the future, apart from the degree of satisfaction or dissatisfaction engendered by the objective characteristics of present surroundings" (Michelson, 1980: 139). If a family expects to own the house they are moving into, and if home ownership is one of their goals, they will be more satisfied with this accommodation than with customary rental accommodation.

Existing Networks: Many of the tenants have chosen to live in neighbourhoods close to relatives and friends. This choice allows existing social networks to be maintained and strengthened. These networks are used as resources by nearly all families in dealing with the activities and problems of everyday life, and they are of particular importance to low-income families (Gottlieb, 1981).

Neighbourhood Networks: The neighbourhoods of these houses provide the possibility of augmenting the existing social networks. As predominantly owner-occupied neighbourhoods each has its own helping network for the tasks of daily living. This potentially supportive environment is usually taken for granted, because it is such a ubiquitous feature of any stable residential neighbourhood. However, these networks are very thin in transient areas, and also in concentrations of low-income social housing units.

Some systematic evidence on the level of tenant satisfaction is now available. As part of an ongoing research project, forty of the first forty-five tenants were interviewed ten months after moving into project houses.[2] Of these forty, 92.5% responded that they were satisfied with their home, 85% were satisfied with the immediate neighbourhood, and 95% were satisfied with their overall decision to move into a project home.

Neighbourhood Support

If the project does continue to produce a high level of tenant satisfaction, this satisfaction should in turn contribute to neighbourhood support. But here we consider the potential for eliciting neighbourhood support more directly.

The Hamilton project does not require the expropriation and destruction of existing housing and the displacement of occupants. It purchases either empty houses or owner-occupied houses for sale on the private market and it avoids the neighbourhood problems that arise from the operation of housing complexes inhabited solely by low-income families. The current integrated projects also avoid these problems by building on newly serviced land on the urban fringe and by limiting low-income families to between 15% and 25% of the total dispersed throughout the complex. Although the resulting unobtrusiveness may avoid neighbourhood opposition it cannot be expected to generate positive support; and yet positive support is necessary if the region is to be able to use social housing as a significant means of neighbourhood stabilization. The Hamilton project is designed to generate positive support by improving the physical environment for the immediate neighbours around each project house.

In the first stage of the project all houses were empty when purchased. Some had been empty for more than three years and most required extensive renovations. Empty houses create negative externalities. At a minimum they become a neighbourhood eyesore, a minor nuisance for adjacent homeowners, and they may reduce slightly the market value of nearby homes. In the longer run an empty house becomes overgrown and the exterior deteriorates from lack of maintenance and minor vandalism. Also there is a good chance that the house will be broken into and the interior vandalized. In some areas there is a substantial risk that it will be set on fire by a casual trespasser, posing a real danger to the adjacent houses. The longer the house remains empty the greater the negative externalities, which will be reflected in substantially reduced prices for neighbouring homes as owners opt to move rather than maintain and renovate their homes, and potential buyers shy away from a declining neighbourhood.

The purchase, renovation and rental of vacant houses removes the negative externality. Objectively the size of this benefit depends on the condition of each house as reflected in the cost of renovation, or perhaps more accurately by the ratio of renovation cost to purchase price. Subjectively the size of the benefit will be determined by the evaluations of those living nearby. The initial result of the project is to benefit the immediate residents by removing the negative impact of empty and deteriorating houses. By contributing to a neighbourhood in this manner the project should earn the support of nearby residents, at least to a much greater extent than other forms of social housing.

So far the evidence on neighbourhood support is very encouraging. After the first forty-five project houses had been renovated and occupied for ten months, neighbours in adjacent and immediately opposite houses were interviewed. Of the eighty-one neighbours interviewed, sixty-three or 78% responded that it had been good for their street to have the house fixed up and occupied, 17% did not have an opinion, and 5% responded that it had not been good for the street. Of the eighty-one neighbours twenty-eight did not know that the project house was part of a social housing program. Of the fifty-three who did know the house was part of a social housing project forty-three or 81% responded that they would like to see other similar houses in their area used in the same way, 17% expressed no opinion, and only 2% were opposed to more project houses in the area. Still to be investigated is the degree of neighbourhood support when owner-occupied houses are purchased, renovated and used as project houses. It will be at least a year-and-a-half before these data can be collected.

The interview data supports the expectation that the project houses should elicit neighbourhood approval and support for more social housing of this nature. We expect that this approval should also trigger improvements in, and/or slow the rate of deterioration of, nearby houses; there should be a detectable renovation effect in the immediate vicinity of the project homes. If, as predicted by the Regional Housing Statement, there is a significant "snowball" effect from home rehabilitation (p. 27), then this form of social housing has the potential to be a significant factor in stabilizing inner-city neighbourhoods well beyond the immediate improvement of project houses.[3]

The Hamilton project appears to have the potential to meet a real housing need, improve local neighbourhoods, and thereby generate rather than erode political support. However, the potential for projects of this type is greatest in areas which have a substantial stock of deteriorating residential and/or commercial property, such as the City of Hamilton, and some parts of other older municipalities such as Dundas, Brantford, and St. Catharines. In the City of Hamilton both Victoria Park Community Homes and McGivney Community Houses have provided a few housing units in a similar manner, and the regional office of C.M.H.C. has recently encouraged the organization of a similar project in Brantford.

In newer areas with residential and commercial property in generally much better condition there is less scope for projects of this nature even though there may be an acute need for low-income family housing. Thus, to meet this need in Burlington, Halton Housing Authority has arranged for the construction of a forty-four unit townhouse complex to be entirely occupied by low-income families on a geared-to-income basis under the Private Assisted Rental Program. The units are to be privately owned and operated with tenants selected on the basis of need by Halton Housing Authority. Rents will be deeply subsidized--we estimate about six hundred dollars per unit per month--with the subsidy paid on a fifty-fifty basis by the provincial and federal governments. The project is located in a mainly owner-occupied middle-income area on the urban fringe of Burlington, and so far it has little of the soft service infrastructure of older residential areas. Unlike the 100% geared-to-income projects of the 1960s this project is privately owned and managed, but otherwise it has many of the characteristics of the public housing projects of the 1960s which were so unacceptable to both tenants and neighbours. Because of its unusual nature (we believe there have been no 100% geared-to-income family projects built in Ontario in the past decade) this project is worth careful monitoring. The Burlington project appears to be an extremely high risk, because it appears to violate the necessary constraints for both tenant satisfaction and neighbourhood acceptance.

CONCLUSION

Although there is a problem of decaying inner-city neighbourhoods in many of the older industrial municipalities in the Western Lake Ontario Corridor, this problem also provides an opportunity to implement badly needed social housing programs. The result can be the use of federal and provincial social housing funds to stabilize decaying areas. To take advantage of the opportunity requires the design of neighbourhood-sensitive social housing projects, and so far the Hamilton project appears to be a viable model of what is required.

The Hamilton project is run by a voluntary non-profit corporation, but in principle, projects of this nature could be undertaken by either provincial or municipal housing authorities or by private housing and real estate corporations. The distinctions between public, voluntary, and private sectors, are less important than project design and management that will generate support for the allocation of funds to enable social housing to be an effective instrument in the older urban centres of the region.

NOTES

1. See below p. 5 for the calculation of annual unit production.
2. This evidence is available from a research project "Neighbourhood Support for Non-Profit Homes" undertaken by the authors and funded by an external research grant from Canada Mortgage and Housing Corporation.
3. Baseline data on project houses, adjacent houses and control houses have been collected in order to assess the physical effect on the immediate neighbourhoods of the 136 project houses.

REFERENCES

Canada Mortgage and Housing Corporation, Statistical Services Division. (1982). Canadian Housing Statistics. Ottawa: Imprimerie Ronalds.

Dennis, Michael and Susan Fish (1972). Programs in Search of a Policy - Low Income Housing in Canada. Toronto: Hakkert.

Michelson, William. (1977). Environmental Choice, Human Behaviour and Residential Satisfaction. New York: Oxford University Press.

____________. (1980). Long and Short Range Criteria for Housing Choice and Environmental Behaviour, Journal of Social Issues 36:3, 135-149.

Oikawa, David Craig. (1980). Blight in Strip Commercial Areas: A Study of The Barton Street East Commercial Strip Area. Unpublished M.A. thesis, University of Waterloo.

Onibokun, Adepoju A. (1972). Public Housing in Canada: A Synthesis of Research Efforts. Urban Renewal and Low-Income Housing 6: 2, 2-13.

Patterson, Jeffrey. (1978). Distributional and Social Impacts of Canadian National Housing Policy: Leaving it to the Market. In Larry S. Bourne and John R. Hitchcock (eds.), Urban Housing Markets, Recent Directions in Research and Policy. Toronto: University of Toronto Press.

Peel Non-Profit Housing Corporation (1981). Fourth Annual Report 1981. Peel.

Planning and Development Department Hamilton-Wentworth Region. (1982). Regional Housing Statement, Update-1982. Hamilton.

Rose, Albert. (1980). Canadian Housing Policy. Toronto: Butterworth and Co.

Ross, David P. (1983). The Canadian Fact Book on Poverty - 1983. The Canadian Council on Social Development Series, Toronto: James Lorimer and Company.

Van Louwe, Robert K. (1983). An Inventory of Assisted Housing in Hamilton-Wentworth. The Social Planning and Research Council of Hamilton and District, Hamilton.

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